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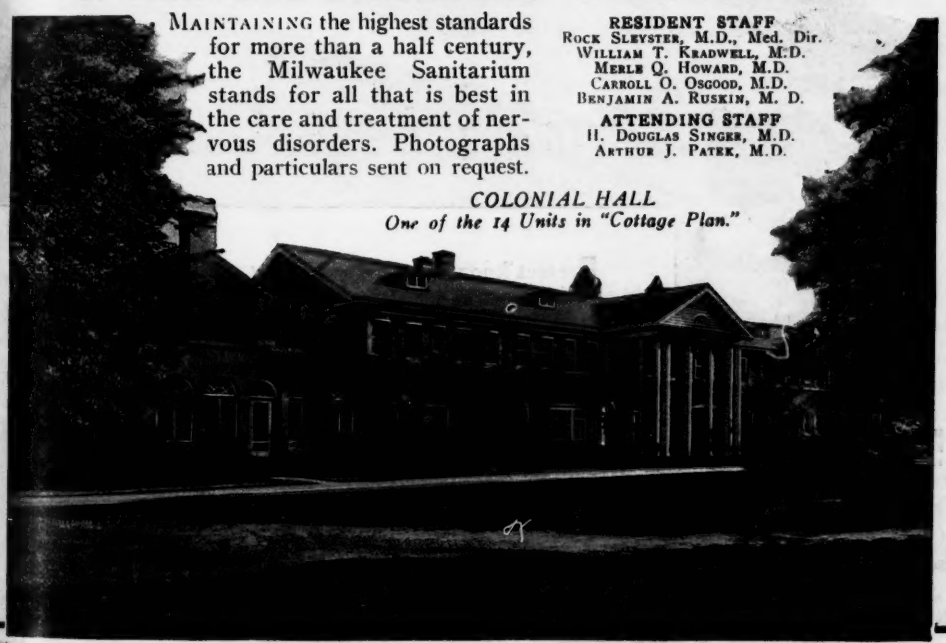

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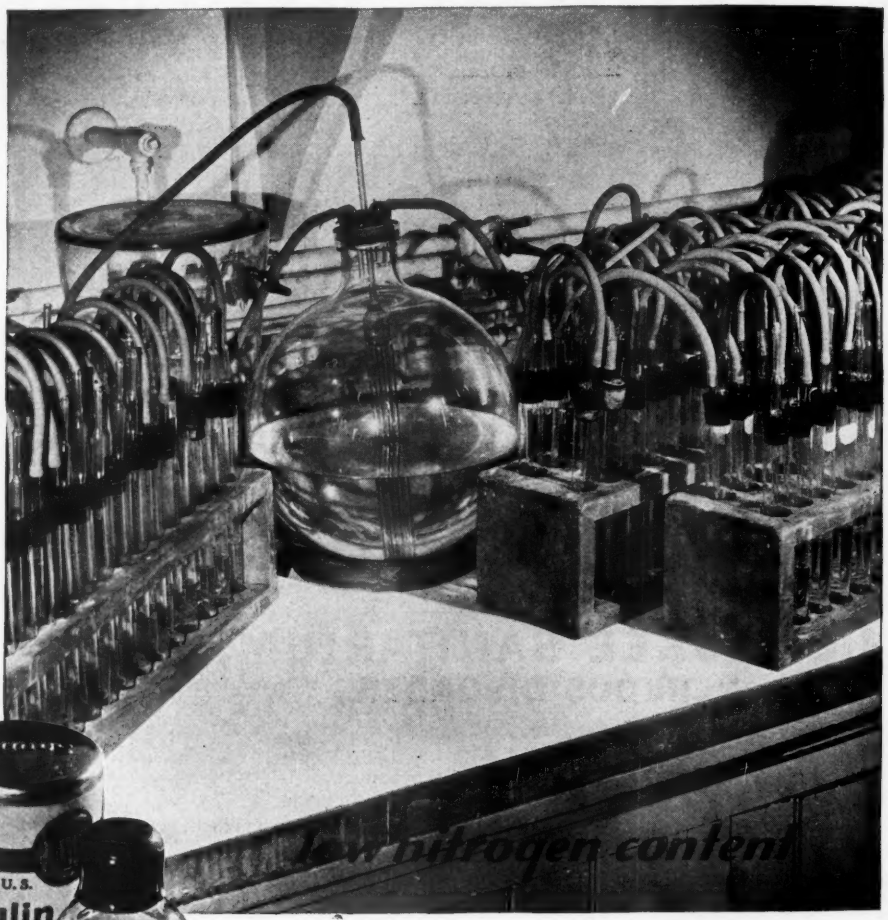

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ILLINOIS MEDICAL JOURNAL

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Editorial

THE PASSING OF THE GOVERNMENT SOCIAL SECURITY ACT BRINGS US ONE STEP CLOSER TO THE MENACE OF LAY-DICTATED WASHINGTON DIRECTED MEDICINE

Finding the joker in the new "Social Security Act" is as easy as seeing the water in Lake Michigan. This new law is a horse-laugh on scientific medicine and American patriotism.

Tentacles of this octopodan law will entwine the medical profession more securely than has been managed by any other communistic traps or socialistic twiddle-dee-dees emanating from the patriotically-paralytic bureaucracy bossing the country with more emphasis than a by-gone Tammany Tweed did lower New York.

"Timeo Danaos, et dona ferentes"—or "I fear the Greeks even when bearing gifts," wrote Virgil in his Aeneid.

The advice has held through the centuries. And yet, even now many men of the medical profession may be dazzled into blindness by the announcement that under "S.S.A." comes an authorization for an annual appropriation of $8,000,000 to be allotted by the Surgeon General of the Public Health Service ***with the approval of the Secretary of the Treasury, to states, counties, health districts and other political subdivisions to aid them in establishing and maintaining adequate public health services.*** Please note the underlined phrases.

To this appropriation comes another $2,000,000 annually to cover the pay and perquisites of ***"personnel of the Public Health Service detailed to co-operate with health authorities of any state and for the investigation of disease and problems of sanitation."***

Even the dullest economist discerns readily the fist of politics clutched in the cash-box of the appropriations, by this provision. Further the S.S.A. states expressly that the *personnel* of the Public Health Service *shall not be detailed* to co-operate with the health authorities of any

state *except at the express request of the proper authorities of the state.*

The reading gets better and better, for the communistic bureaucracy, as the eye flashes on. Let it be remembered that the actual dictation of the provisions of the Social Security Act are said to have come from the trustees of one of the nation's richest foundations to which gossip points the finger of accusation of being "Red." This is easy to believe.

Surely the scarlet stain far more than tinges that provision of the act where the nefariously non-patriotic Children's Bureau, sponsor of Sheppard-Towner and other bilge of like ilk, gets a chance to manipulate still another appropriation of about $7,000,000 which is appropriated to the Secretary of Labor under the mantle of "aiding mothers and children" in areas that are isolated geographically and impoverished economically. With a lot of ballyhoo and many polysyllables the outward intent of this is to help the stricken. It is safe to prophesy that when it comes to the working out of the provisions of the plan, the "stricken" who get the most aid will be those who profited the greatest through the maternity act appropriations . . . i. e. the *politically* "stricken" henchmen of big-politics who need jobs! Sheppard-Towner bought no diapers nor swaddling cloths for infants; nor sheets, nightgowns, fuel, shelter nor care for mothers. But it did buy all these and more for the men and women paid by heavy taxes out of the pockets of burdened taxpayers and who went around *telling* mothers *how* to feed children *if they had food to give them.* The blind also get an annual appropriation of $3,000,000. This too is to be spent under the thumb of the politically appointed Social Security Board. It is noteworthy *that none of these taxwrested millions are turned over to the medical profession to administrate, but that each and every appropriation in the provisions of its spending, bring public health as involving sanitation and prophylaxis and the general practice of medicine further and further into the octopodan clutches of communism and socialism. Bureaucrats at Washington feed the taxpayers pipe dreams that are solemnly regarded, as substantialities as firm as Gibraltar.*

Remember that the Social Security Board consists of three members APPOINTED BY THE PRESIDENT BY AND WITH THE CONSENT OF THE SENATE.

The one slight concession to criticism lies in the fact that not more than two members of the board can be members of the same political party.

BUT, note that the very *"funds or foundations organized and operated exclusively for charitable, scientific or educational purposes, no part of the net earnings of which inures to the benefit of any private shareholder or individual; or corporations, or community chests are liable for taxation."*

Yet it is THESE SAME FUNDS, FOUNDATIONS, COMMUNITY CHESTS AND CORPORATIONS THAT STAND UNACQUITTED TODAY OF THE CHARGE OF BEING THE RICHEST, MOST POWERFUL COMMUNISTIC ELEMENT IN THE UNITED STATES AT THE WRITING AND ACCUSED OF HAVING THEMSELVES INSPIRED AND EDITED THE WRITING OF THE SOCIAL SECURITY ACT.

The sociological departments of these organizations have good right to "have it in" for organized medicine. For these departments to a large extent have had such a grand good time practicing medicine themselves without interference or without the expense or burden or bother of having had medical educations. A new Krafft-Ebing, an American Jung or Freud might compile statistics to show how many "old-maids," spinsters either by desire or compulsion, secure vicarious maternal thrills from telling their pregnant sisters how to be mothers, or-and this is the other side of the question—how NOT to be!

Health insurance is the white-haired boy among the bulk of these "foundation" groups. While the S.S.A. makes no specific reference to state medicine and health insurance, in the new law the germ of it is there, wide awake and doing its damage to the entire social structure of the nation as efficiently as any group of death dealing bacteria. As a matter of fact among the cognoscenti, "health insurance" and "social insurance" have long been interchangeable terms, so much so that the synonymity needs no explanation, at any place or time.

In conclusion we quite appropriately quote the editorial comment appearing in the *Journal of*

the American Medical Association under date of August 24, 1935, which ran:

"The Social Security Act is designed to work a revolution in the social and political relations of the people and of the several states to the federal government. To what extent it is constitutional and to what extent unconstitutional is a question that THE JOURNAL cannot decide. Fortunately, it is not called on to do so. The sooner the question is decided by the courts, however, the better it will be for all concerned. In carrying out the provisions of the act in the fields of medicine and public health, the officers charged with that duty are certain to find themselves handicapped by the scarcity of competent skilled and experienced assistants and workers in practically every grade of service called for."

However no medical group or community, that is patriotic or scientific, in sincerity dare fall asleep on the task of watching its workings. It looks now as if the octopus has a menacing start.

The passing of the social security act brings us one step nearer to the menace of lay dictated, Washington directed medicine and demands an organized, solidified State and National medical association.

SPENDING YOUR WEEK-END IN A HOSPITAL

A great many disconcerting conceits emanate from Manhattan borough. A popular play of some seasons since called "The New York Idea," frightened the very spinal columns of dozens of "Dulcy's" and "Babbitt's." Unfortunately many of the principles set forth therein proved prophetic. New York is a magnificent metropolis populated with persons of intelligence and renown and initiative. So much initiative in fact, that many good Americans are quite put to it, to keep pace with the New York idea.

A slice of such initiative and the latest startling "New York Idea" to flabbergast a somewhat conventional section of United States citizenry is the conceit to "spend your week-end in a hospital."

Subscribers to New York's the "Group Hospitalization Plan" pay an annual fee of three cents per diem, and are entitled to free hospital service of three weeks per year. "Caveat emptor" having been taken well to heart by these clever three-centers, in order to get their money's worth, the wary buyers in these instances are annually taking ten week-ends in hospitals.

Of course the rest does them good. No chronic, nor even serious condition can be well diagnosed and thoroughly cured in the Saturday-to-Monday scheme. Such a system, of course, permits alleviation of many minor ailments without losing "business hours." More than anything else however, the "week-end hospital holiday" holds the "mirror up to nature"—the meretricious nature of publicly and lay controlled "sickness" or "health" insurance. Champions of these fallacious, socialistic, incompetent, extravagant, theoristic schemes take great pride in the fact that in Germany and England the pro rata increase in illnesses and invalids had almost a triple per capita rate within a very few years after compulsory health and sickness insurance adoption.

Unfortunately this increase does not mean an improved public health. Even statisticians are making this discovery. What it does mean is that medicine, public health systems and the allied machinery are being made the target for the neurotic, the indolent, and the incompetent who would rather go to a bed for a sore corn than to go to the trouble of taking a foot bath, before cutting off the offending callous. Also that it opens the door a bit wider for the ingress of state medicine.

Taking a serious illness by the forelock will often save a life, or at least a permanent disability. Nurturing a petty complanit by full disabiltalization for one day or even three, does more harm than good outside of the fact that such complete care and rest may force the patient into communion with such conscience as he may have. *Medical men find that under all of these health insurance schemes malingerers thrive like mushrooms in the rain.* Such systems tend to increase rather than to decrease the cost of medical care, and are about as efficacious as a throwback to the medieval England cure for rupture that prescribed the afflicted man to pass through a cleft ash tree.

Dr. J. F. Kimball was responsible for putting through this latest New York idea. That it is a "voluntary," a regular three-cents-per-day free-will offering helps the matter not a whit. In due time these "voluntary" schemes with political opportunities invariably develop into "compul-

sory" schemes with public taxes and jobs for politicians. Communities with even "part-pay" compulsory health insurance find out sooner or later that once you catch a wildcat by the tail you find it pretty hard to let the animal go! Americans do not want "health" or "sickness" insurance that is heading towards what has aptly been phrased as "state control, state participation, state operation." Bureaucrats in Washington should keep their hands off the practice of medicine.

ENDOWED FOUNDATIONS— UNAMERICAN WAYS

With something like $1,400,000,000 of American money tied up in "endowed foundations," and an expenditure therefrom of something like $70,000,000 annually it is tragic to contemplate the way in which fortunes amassed by American pioneers are squandered in the ways that lead toward the destruction of America itself.

If the dead could rise in a species of premature or sample or dress rehearsal of Judgment Day, what a scattering of day dreamers and political tight-rope performers would occur!

For unfortunately the control of many of these millions is vested in trustees or administrators chosen for their supposed sociological competence, which is really but a mask for communistic consciousness.

The most powerful entering wedge for communism and for socialism in America that can be effected is through such control of the medical profession and of the home and the public health as will follow in the wake of socialized or state medicine. There has been a howl echoing through the highlands and a wail in the valley of our national terrain as to the "high cost of medical care." Why not reverse the spotlight? Throw the glare of publicity, the analysis of maintenance upon these bureaucrats who form the "organization of foundations" and who have practically lashed to the mast every other group and organization in the country. To this group is attributed the writing of President Roosevelt's "Social Security Bill" and much other legislation that actually belongs in the soviet and under a flag of all red, rather than ore of Red, White and Blue! It would be interesting to take an accurate census as to how many of these trustees and foundation potentates, betraying the trust and faith of dead American patriots, fought in the World War or ever rendered any other kind of national service that brought a single iota of risk to their un-American hides!

Although established primarily as dispensers of philanthropy, yearly these terrible foundations dispense more and more propaganda tending to pauperize rather than to patriotize the country. They are a menace, not inherently but by the vicious overindulgence of selfarrogated power displayed by their administrators. It is a frightful example of the "Tail wagging the dog." Probably the idea back of this moneyed menace is that the founders are dead, and that a dead man is a dead man, and no two ways about it, and that so long as the trough is full there will they wallow!

THE 1936 ANNUAL MEETING

Stimulated by the success of the 1935 annual meeting of the Illinois State Medical Society held in Rockford last May, plans are already under way for another highly successful meeting to be held in Springfield on May 19, 20, 21, 1936.

With the consent of the Council, Dr. R. F. Herndon, of Springfield, has been selected as General Chairman of the Committtee on Arrangements. The Abraham Lincoln Hotel has been selected as the general hotel headquarters, and the meetings and exhibits will be cared for at the Knights of Columbus Club, where the recent Springfield meetings of the Society have been held.

The Committee on Scientific Exhibits expects to have the finest scientific display in the history of the Society, and a great deal of space will be devoted for their showing. Suitable awards will be made for the best exhibits in each of the three general classes. Members of the Society who desire to present a scientific exhibit may get complete details relative to the requirements and the classifications from the Secretary of the Committee on Scientific Exhibits, Dr. N. S. Davis, III, 700 North Michigan Avenue, Chicago.

The Scientific Committee, composed of the chairman and secretary of the five scientific sections, with the President and the Secretary of the Society, will meet during the fall to tentatively outline the plans for the presentation of

the scientific work for the meeting. Members having suggestions to make relative to this subject, may address the Secretary, Dr. Harold M. Camp, Monmouth, and their ideas will be referred to the committee at its meeting.

The Sangamon County Medical Society has had much experience in acting as host society for annual meetings, and every effort will be made by all interested in the success of the 1936 annual meeting to make it one of the largest and best meetings of all time.

FATAL ASTHMA: REPORT OF CASE WITH BRONCHIAL MEASUREMENTS

The case reported is, Howard M. Bubert and C. Gardner Warner, Baltimore (*Journal A. M. A.*, April 27, 1935), believe, a fatality from true bronchial asthma. From a pathologic standpoint the changes observed in the bronchial structures as well as the unusual contents of the Lumen coincide with those reported by Huber and Koesser and by Alexander and Kountz. In the authors' opinion, whorling and inspissation of mucus, together with the heavy eosinophilic infiltration, are characteristic of bronchial asthma. These mucous casts of the small bronchi represent embryonic Curschmann's spirals, which are later coughed up, after the relaxation of the muscle spasm. They should be present "in situ" in those cases in which death comes during an asthmatic paroxysm. The degeneration of the mucous glands is probably the result of prolonged overactivity. The eosinophilic infiltration is as yet inadequately explained. The changes in the heart and kidneys in the case reported were negligible. The slight hypertrophy of the right ventricle was to be expected with partial obliteration of the capillary bed by the associated emphysema. The manifestations of a mild chronic nephritis with some tubular degeneration appears unrelated to the outstanding features in the case.

PERIPHERAL VASCULAR DISEASE: ITS SIGNIFICANCE FOR GENERAL PRACTITIONERS AND SPECIALISTS

Géza de Takàts, Chicago (*Journal A. M. A.*, April 27, 1935), points out that it is no exaggeration to say that thousands of individuals are unconscious or mildly conscious of a progressive interference with their peripheral circulation. Their feet may be pulseless but still in a stage of compensation. Their "rheumatic" pains come and go with changes of weather, mechanical stress or emotional load. An occasional numbness or tingling of the extremities is disregarded. They undergo an annual or semiannual physical examination during which peripheral circulation is ignored, although the heart is carefully examined, chest plates are taken and electrocardiograms are read. As a result, the middle aged wage earner, the insured policyholder, or the railroad or street car conductor suddenly develops a serious interference with the peripheral blood flow. Undoubtedly the general practitioner sees these patients first. Many cases of peripheral vascular disease are also encountered by internists, orthopedic surgeons, traumatic and industrial surgeons, neurologists and dermatologists, whose special field of interest lies somewhat apart from problems of peripheral circulation. The study of peripheral circulation has advanced to a point at which a simple office procedure can be included in the course of a thorough physical examination. The author outlines such methods of examination, evaluates their meaning and indicates the therapy of the most common peripheral circulatory disturbances.

PAPILLEDEMA IN UNDULANT FEVER

C. W. Rutherford, Iowa City (*Journal A. M. A.*, April 27, 1935), states that diagnoses of undulant fever were made in sixty-three patients admitted to the University Hospital from June 1927 to August 1934. Three of the series, white men aged from 20 to 27 years, showed disk changes. The three were admitted within a period of fifteen months. Melitensis infection of the central nervous system occurs occasionally with or without ocular complications. A summary of sixty-three cases of undulant fever shows that in three there were bilateral papilledema, an increase in the spinal fluid pressure, mononuclear pleocytosis and evidence on which to base a diagnosis of infection of the central nervous system by some variety of the melitensis organism. Five cases were found in the literature; the disk changes observed in them can be interpreted as papilledema. The diagnosis of undulant fever is admittedly difficult. Papilledema is occasionally found in patients in whom the symtomatology is indefinite and leading signs are absent. It is in such cases that undulant fever should be considered in the differential diagnosis.

POLLEN STUDIES IN SELECTED AREAS

In the nation-wide five-year pollen survey (1929 to 1933) O. C. Durham, North Chicago, Ill. (*Journal A. M. A.*, April 27, 1935), studied the distribution and behavior of the various kinds of air-borne pollen in the more densely populated areas. The data from such places are useful to physicians in interpreting skin reactions, selecting suitable pollens for treatment and planning treatment schedules. In the course of this work a number of localities were noted where the atmospheric concentration of ragweed pollen is comparatively low. The figures are only approximate. The amount of air-borne pollen in any locality varies from year to year, depending on wind and weather. A comparison of the number of days in each of eighty-five localities when the air carried an average of twenty-five or more granules of ragweed pollen per cubic yard is given.

PASS THE MUSTARD

Cannibal: "We've just captured an actor."

Chief: "Hurray! I was hoping for a good ham sandwich!"—*Penn. Punch Bowl.*

TO BE EXACT

She: "Did you get hurt when you were on the eleven?"

Jack: "No, it was while the eleven were on me."

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

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Address all letters and communications to the Chairman.

During the last few months a new problem of vital interest to the medical profession of the state has arisen. This is the result of a law passed at the last meeting of the Illinois State Legislature, whereby the care of the chronic indigents was made a responsibility of the Board of Supervisors instead of an individual responsibility of the Township and its Supervisor. This has caused great confusion due to the fact that there has been no funds allotted by the Board of Supervisors for this work and accordingly they are unable as well as unwilling to assume this responsibility. On the other hand, the Supervisors have alloted funds from their Township monies for this work, but are no longer legally permitted to use same. Incidentally, it may be mentioned that in many instances the Supervisors have allotted funds from their Township from their hands. We as medical men are not directly interested in the political phase of the problem, but are vitally interested in the care of the chronic indigent. In spite of the fact that no funds have been appropriated for the medical care of the indigent, capable of use since the first of July, 1935, we have been expected to carry on without a definite promise of any future payment for our services. And we are happy to be able to say that to the best of our knowledge, there has been no failure on the part of the medical profession to carry on in the proper manner. However, with all this confusion, there are grave dangers of changes being made in the manner of conducting the medical care of the indigent which is inimical to the future of the medical profession. This is due to the attempts to appoint one or two men in each county to act as County Physicians, at reduced prices, of course, to give this care. Now, all of us know that any such plan does away entirely with one of the things we have been talking about and fighting for the past several years, namely the priviledge of the indigent to select their own physician. If not allowed to do so, in most cases they refuse the so-called county physician and call instead some kind physician, who renders the necessary service in spite of the knowledge that he will never be paid. It is regrettable that the Illinois Medical Society has no definite plan which can be given to the component societies to guide them in arriving at the proper solution of the problem. But while there has been much talk about what should be done as yet there has been no concerted action.

We must not forget that we are leaving a great opportunity to the reformers and idealists to advance the cause of Socialized Medicine, for if they can incorporate the medical care of both the chronic indigent and the unemployed under their supervision and then appoint a County Physician or Surgeon in each County, they have the nucleus of an organization to be taken over at the earliest opportunity, and they are constantly trying to find the opportunity. This is an excellent time for the Physicians of each County to meet and refuse to consider such a position as referred to above and if they will stick together, such an appointment cannot and will not be made over their protest aided by their friends and patients. It will take a little effort and time to combat this attempt, but it can be done easier at this time than ever again. Naturally, such a position will appeal to some men in every county, but if they are talked to and the entire situation explained to them, there should be little trouble in convincing them that the acceptance of such a plan is dangerous to the future of medical profession.

The best plan brought to attention of your committee for a temporary solution of this problem and we hope that the problem is so temporary that it will be changed back to the original method of Township responsibility at one of the proposed special sessions of the legislature this October, is for the Physician of every County

in the state to offer to do the chronic indigent work for the County Board of Supervisors at the same rate and prices they are now giving the Illinois Emergency Relief Commission. This will give all the Physicians in the state some additional income, will permit the sick to have the physician of their choice and help to keep under some little control the efforts of the reformers to build a skeleton organization to use when as and if they are able to make any further progress toward State Medicine. Certainly there is much to be said in favor of even such a plan and if adopted we hope that some of the red tape of the IERC will be omitted.

On September 8, 1935, the Committee on Medical Economics of the Illinois State Medical Society met at Chicago to discuss the problems of organized medicine and the procedure of the committee for the year of 1935-1936. They were in agreement that there was a great amount of work to be done. After considerable discussion it was agreed that the most important thing for the committee to try to accomplish was the continued education of both the medical profession and the laity along economic lines. The surface was just scratched the last year, but they are convinced that there is a great interest in this subject and it is up to organized medicine to do the work. Miss McArthur of the Educational Committee tells us that there is a great demand for speakers on medical subjects by the laity, but at present there are not adequate speakers available. Accordingly it was agreed to make a great effort to locate, train, and make available speakers in all parts of the state. This was to be accomplished through the aid of the Councilors who would select capable speakers in their district, and through the office of the Secretary and the Educational Committee. These men would be furnished the necessary information so that they could go out to lay organizations in their part of the state. We hope that there will be a response on the part of the medical profession that is worthy of the importance of the subject as well as the opportunity of accomplishments. Any man who feels the urge to help in this work should get in touch with his district Councilor.

Following this article is one by the Secretary of the Illinois State Medical Society on "The Federal Social Security Act." This is a very appropriate time to learn what this act means to the medical profession and it is to be hoped that every physician in the state will take the time to read and think about this subject. If he will do that, we feel sure that he will use his influence against the extension of such socialistic experiments, which are but the first of a series of contemplated similar acts.

E. S. HAMILTON,
Chairman of Committee on Medical Economics.

THE FEDERAL SOCIAL SECURITY ACT

After many months of deliberation in Congress the Federal Social Security Act became a law on August 14, 1935. There are a number of things in this Act which are of interest to members of the medical profession as dispensers of medical care and others of interest to them as taxpayers.

The Act is divided into eleven titles, nine of which are based on the principle of Federal-State co-operation. Before it is in operation in individual states, it is necessary for the state legislatures to pass enabling acts and then to submit their plan for the operation of the several functions for the approval of the proper bureau or board in Washington.

Congress adjourned without making the necessary appropriations to permit the immediate operation of the Act and it seems quite probable that this will be one of the first duties of the next congressional session.

The Security Act calls for services to the blind, the aged, the unemployed, maternal and child health, crippled children, vocational rehabilitation, child welfare and public health work.

The sum of $8,000,000 is appropriated annually through the United States Public Health Service to be allotted to the states and to be used in aiding the carrying on of public health work. Several suggestions have been made as to the methods by which this money can be used, among which are adding to the personnel of organized health departments, formation of county or district health units, making health surveys, etc.

The Act creates a Social Security Board to consist of three members to be selected by the President and not more than two of the members of the same political party. The Board in addition to the responsibilities pertaining to the operation of the Act, is also charged with the responsibility of making studies and later recommendations to Congress for increasing the va-

rious aids to the people which have some bearing on their future security.

Although health insurance or governmental practice of medicine is not specifically mentioned, it is reasonable to believe that efforts will be made to include such a recommendation in the report of this Board to Congress at an early date.

Organized Medicine remains unalterably opposed to health insurance, and still approves the ten point program adopted by the House of Delegates of the American Medical Association at the Cleveland meeting last year. The Illinois State Medical Society has repeatedly gone on record as approving the same program. It is therefore quite obvious that medical societies and physicians in general should be ever on guard and lose no time in making plans to continue the opposition to all threatening inroads on medical practice.

Several of the appropriations allotted to states under the Social Security Act are ridiculously low and entirely inadequate to be of material value to do the things which are proposed among the various "projects."

It has been proposed that a house to house canvas be made by selected workers for the purpose of ascertaining the health of the members of the families in an effort to determine the incidence of various diseases. We can readily imagine the results when these workers call at the home of individuals who "enjoy their symptoms" and appreciate the opportunity to discuss them. How many times will they record heart trouble, kidney disorder, liver, bladder trouble, rheumatism and perhaps a half dozen other ailments in the same patient when the family physician has realized for a long time that there is but little or perhaps no actual pathology present in the case.

It is possible that statistics so compiled will be used by propagandists in an effort to show the inadequacy of our present methods of caring for the sick, and physicians should be prepared to combat such arguments if they arise.

The Illinois Department of Public Health which was originally created after the Illinois State Medical Society had repeatedly appealed to the state legislature over a period of years for its development, has been able to carry on the work prescribed for it by law in a most commendable manner and on a relatively low biennial appropriation. The Department has never asked for Federal aid and to our knowledge no one has ever produced reliable statistics to show that it is incapable of caring for the public health needs of our state in any way.

When health departments become Federalized we can readily believe that there will be confusion and perhaps unfortunate controversies arising between State and Federal health workers. Under the wording of the Federal Security Act efforts can be made to control practically all public health work such as control of milk and water supplies, food inspection, sewage disposal, housing problems, venereal and contagious diseases, and many other things now under direct supervision of our state health department, for it is quite obvious that all of these have some bearing on maternal and child health, and other conditions which the Act is expected to aid.

If the Social Security Board should rule that these things must come under Federal supervision, it seems that there will be but little work left for our existing health departments, unless they are completely subsidized and federalized.

There is no definite proof available to show that maternal and infant mortality in the United States is higher than in other countries, provided the same standards are used in compiling statistics. There has been a gradual improvement in both mortality and morbidity statistics througout the world, and from statistics released by the League of Nations, we find that the lowest death rate in civilized countries is in the United States. Likewise we have the lowest death rate among infants based on each 1,000 live births, that is to be found anywhere, and a lower death rate from many other diseases.

Again there is no evidence available to show that Federal health workers are better trained or are superior in any way to those found in our existing health departments, yet it is proposed to have power concerning all health problems centralized in Washington.

Realizing that this is the time when our law makers are at home and available to their constituents, it seems that it is the logical time for all physicians to contact their legislative friends and give them reliable information on the subjects which will be before them at an early session of the legislature. Legislative and public opinion against any radical changes in existing but satisfactory methods of controlling disease

and against a system which has not produced standards of medical care and control of disease equal to those in this country, may be of inestimable value to both the laity and the Medical Profession.

The aid to be given in maternal and child health under the Security Act is in reality a continuation of the old Sheppard-Towner Act which Illinois wisely refused to accept some years ago. During the period of its operation, there was a general reduction in mortality and morbidity statistics throughout the country, but the three states which did not accept its provisions showed as great an improvement in these statistics as was shown in other states where it was in operation, and Illinois statistics were improved more than any other state. We progressed most satisfactorily without Sheppard-Towner assistance, and we can no doubt get along equally as well without other Federal aid.

The American Medical Association has compiled a number of interesting pamphlets of an informative nature which any physician may have without cost, by writing the Secretary, or the Bureau of Economics of the American Medical Association, 535 North Dearborn Street, Chicago.

There should be no truce, no let up in our activities, but we should endeavor to get all available information constantly and tell our legislative friends as well as the public in general what it is all about, and why we believe it is not for the best interest of our people.

Harold M. Camp, M. D.

Correspondence

THE ALLEGED HARMFULNESS OF MEDICINAL MINERAL OIL

Elizabeth, N. J.,
Sept. 11, 1935.

To The Editor:

In the March, 1935, issue of the ILLINOIS MEDICAL JOURNAL (page 236) appeared a paper entitled "Unsaturated Fatty Acid (vitamin F) Deficiency" by Mildred Oncken, M.S., Chicago. Without taking issue with the main thesis of that paper, i.e., that the unsaturated fatty acids have an indispensable nutritive function, it is desirable to point out and correct a number of statements regarding medicinal mineral oil which it is felt are very misleading.

Miss Oncken twice states that mineral oil is substituted for fat in foods and gives the impression that this practice is relatively common. In my personal experience of fifteen years in the technical service of one of the largest producers of medicinal mineral oil in the world, I have heard of but one instance in which such substitution has been even suggested. I do not regard the marketing of non-fattening mayonnaise as substitution because all the brands of this preparation are carefully labeled in such a manner as to disclaim food value—in fact their lack of food value is their *raison d'etre.*

In certain highly mechanized food industries such as baking and ice cream making, highly refined mineral oils of the medicinal type are used as lubricants whenever there is danger of small quantities of the oil becoming mixed with the food substances. This again can in no wise be considered a substitution of mineral oil for food fats.

If Miss Oncken is really cognizant of any deliberate substitution of mineral oil for natural fat in foods sold to the American public, she should notify the Food and Drug Administration of the Department of Agriculture who will doubtless be glad to take action.

Miss Oncken further refers to "the proved vitamin-depleting property of mineral oil" in such a way as to imply that any quantity of mineral oil under any conditions is likely to deplete the body of any or all vitamins. The work of Richard W. Jackson, R. A. Dutcher et al., Jennie I. Rowntree and others has, within the last four years, so clarified the whole question of vitamin diversion by mineral oil that there is no longer any excuse for such sweeping indictments. It may now be said quite positively that the only vitamin capable of being diverted by mineral oil is vitamin A and this only when the vitamin A is ingested in the form of carotene, not when the actual vitamin, the sterol as found in fish liver oils, is taken. Furthermore, this diversion effect was found to be clearly distinguishable only in the case of animals receiving a bare maintenance ration of vitamin A. There is no evidence that the other fat soluble vitamin, namely, vitamin D, is diverted by mineral oil.

Almost obviously the water soluble vitamins B-1, B-2 (F, G) and C are not liable to such diversion. Actual danger from vitamin A depletion would therefore exist only in the case of poorly nourished individuals getting a bare maintenance requirement of vitamin A and ingesting mineral oil over long periods of time.

Miss Oncken refers also to the "absolute valueless nutritive property" of mineral oil by which I suppose she means its complete lack of food value. This, of course, is universally understood and constitutes its great advantage when used as an intestinal lubricant.

The most serious accusation which this author brings against mineral oil, however, is in her last paragraph wherein she refers to "the lurking carcinogenetic property of mineral oil which has been quite repeatedly mentioned in unbiased medical literature but with equal regularity ignored." This indictment which incriminates by implication almost the whole of medical literature and the medical profession is singularly inept in view of the very thorough and painstaking work which has been done in recent years by many competent investigators including, especially, the Manchester Committee on Cancer and its indefatigable research staff headed by C. C. Twort. That committee repeatedly emphasizes (as, for example, in its reports of 1932-33 and 1934) that white oils such as medicinal liquid paraffin are totally free from carcinogenic properties. This opinion is expressed in the paper on the Carcinogenic Potency of Mineral Oils by C. C. Twort and J. M. Twort (J. Ind. Hyg. **13**: 204, 1931); "medicinal liquid paraffin has given consistently negative results" as well as in an earlier paper by C. C. Twort and J. D. Fulton "Experiments on the Nature of the Carcinogenic Agents in Mineral Oils" (J. Path. Bact. **32**: 149-161, 1929) wherein an oil repeatedly treated with sulphuric acid in the manner used in manufacturing medicinal mineral oils caused no tumors in 400 animals over a period of 58 to 70 weeks.

The whole question of cancer causation by intensive contact with mineral oils has attracted serious attention chiefly in England and Scotland where Scotch shale oil distillates containing notable proportions of anthracene derivatives are in common use as lubricants. Even such distillates, when intensively treated with sulphuric acid, lose completely their carcinogenic properties. In the Manchester Committee's reports for 1932, 33 and 34, C. C. Twort gave a table correlating carcinogenic potency with geographic origin showing that even in a crude or technical state American oils are far safer than oils from some foreign sources.

In our own country, the most exhaustive research was published in 1930 by Dr. Francis Carter Wood, Director of the Crocker Institute of Cancer Research, under the title "The Non-Carcinogenic Nature of Purified Mineral Oils," (J. A. M. A., **94**: 1641-1643, 1930). Dr. Wood not only discussed the general considerations which might bear upon the problem and noted the absence of any reported evidence but performed skin tests on 200 mice and intestinal tests on 200 mice and 600 white rats. Some of these tests lasted for a year. Two leading brands of American medicinal mineral oil, namely, Nujol and Squibb's Liquid Petrolatum, were employed. In no case was there any evidence of cancer.

Miss Oncken's unwarranted attack upon medicinal mineral oil seems especially uncalled for since it is scarcely conceivable that mineral oil administration would interfere with the assimilation of the unsaturated fatty acids present in combined form in our food. Her designation of unsaturated fatty acids as "Vitamin F" is not only confusing owing to the prior use of the term Vitamin F as a synonym for vitamin B-1 but is also inappropriate owing to the fact that the unsaturated fatty acids are a relatively massive food factor not comparable in potency to the isolated vitamins already known, and properly to be regarded merely as an indispensable fraction of our fat supply, scarcely as an "accessory food factor."

By virtue of their mere quantity in a well-balanced ration, it is unlikely that they would be diverted to any serious extent by the usual quantities of medicinal mineral oil consumed. At any rate, this conceivable diversion of unsaturated acids by mineral oil would seem to be a problem suitable for attack by the experimental method rather than by propaganda.

Stanco Incorporated.

DUDLEY H. GRANT, M.S.

SCIENTIFIC EXHIBITS FOR THE SPRINGFIELD MEETING

Your Committee is informed that at the Springfield meeting, May 19, 20, 21, 1936, at least as much space will be available for scientific exhibits as there was at the Rockford meeting. It is hoped that the exhibits at Springfield will be better than those at any previous meeting.

In 1936 there will be no cash awards but silver and bronze medals and certificates of merits in the following classes:

Class 1. Exhibits of individual investigations, judged on the basis of originality and excellence of presentation.

Class 2. Exhibits that do not exemplify purely experimental studies, judged on excellence of presentation.

Class 3. Educational exhibits.

It may be possible for the Committee to arrange special exhibits in connection with the programs of joint meetings of the Sections. Such special exhibits will not be open to awards.

It is hoped that in 1936 there will be more exhibits from outside Cook County. It is probable that most of the exhibits in Class 1 will be from Cook County as most of the facilities for such work are located in Chicago. Educational exhibits and exhibits that do not exemplify purely experimental work can, however, be presented just as well by those from less populous areas. Family doctors might make contributions of inestimable value, by preparing graphs and charts on morbidity and mortality in their communities, on familial incidence of various infectious diseases, of cancer, of arteriosclerosis and its results, of hypertension, diabetes, etc. Furthermore there are many problems in industrial medicine peculiar to industries that do not exist in Cook County, regarding which interesting exhibits could be prepared. A number of exhibit booths are being reserved for exhibits originating outside of Cook County.

It takes time to prepare scientific exhibits and to assemble the material on which they are based. There remain seven months for this work. You will be more apt to do it if you have actually applied for space. Dr. N. S. Davis, III, 700 North Michigan Avenue, Secretary of the Committee on Scientific Exhibits, will supply application blanks to all who desire them.

J. S. Templeton, *Chairman.*
James P. Simonds
Robert Berghoff
Charles Harmon
N. S. Davis, III, *Secretary.*

OTHO BOYD WILL—OBITUARY

WHEREAS, Our beloved fellow member and colleague, Otho Boyd Will, has been called from his earthly labors; and

WHEREAS, During his sixty years or more of professional service, Dr. Otho Boyd Will was identified with nearly all efforts having to do with the advancement of scientific and organized medicine; and

WHEREAS, As President and in other official capacities in the Peoria County and Illinois State Medical Societies, the Peoria Hospital, editor of the *Peoria Medical Journal,* delegate to the State society and other organizations and institutions, he carried out his responsibilities with credit to himself, to the profession he loved, and to his fellow citizens; now therefore be it

Resolved, By the Board of Councilors of the Illinois State Medical Society that the sympathy of the members of this association be extended to the bereaved family; and be it further

Resolved, That a copy of these resolutions be spread upon the minutes of the council, that they be printed in the Bulletin of the Peoria County Medical Society, in the ILLINOIS MEDICAL JOURNAL, and a copy be sent to the family.

E. P. Coleman,
I. H. Neece,
Charles J. Whalen.

DISSOLVING KIDNEY STONES WITH VITAMINS

Charles C. Higgins, M. D. (Surgical Clinics of North America, Cleveland Clinic No. 15, 923-936, 1935).

Under the title Medical Management of Urinary Lithiasis says: (abstract) White rats maintained a long time on a diet deficient in *Vitamin A* develop urinary lithiasis in a large proportion. Last eight months selected groups

of patients with urinary calculi have been treated by a dietary regimen.

1. When patient refused operation.

2. Patients with bilateral renal calculi when operation was not deemed advisable.

3. With calculi in one of calices but no obstruction.

4. With small calculi in renal pelvis without obstruction.

5. With calculi passed often but not demonstrated by Roentgen examination.

6. With calculi of size to require nephrectomy.

7. When it was desired to prevent recurrence after operative removal of stone.

As a rule, a high vitamin (especially vitamin A) acid-ash diet is sufficient to give the urine an acid reaction, but in patients with a renal infection from proteus organisms acidifying agents as well as vitamin A must be administered.

Vitamin A is included in diet with haliver oil or carotone in oil capsules T. I. D.

"I now have complete reports of 18 cases in which stones in the kidney have entirely disappeared under medical management, and detailed reports of the cases will appear in a later publication." (7 radiograms) stones before treatment; disappear after.

BACK TO THE CONSTITUTION

The future outlook of the country shows clearly that the Federal Government is striving to control the schools of the country, to rock the cradles (if the birth controlists permit babies to be born) to nationalize medicine, education, labor, railroads, farming, stock yards, dictating personal habits of individuals and finally controlling the religion of our people.

ST. LOUIS MEDICAL SOCIETY INVITES ILLINOIS PHYSICIANS

The 29th Annual Meeting of the Southern Medical Association, the second largest medical organization in the United States, will be held in St. Louis November 19-22.

The unusual clinical facilities of the two medical schools and the numerous hospitals, combined with the high standing of the medical profession, and the excellent hotel accommodations make St. Louis an ideal city for this medical gathering.

Addresses and papers will be presented by distinguished clinicians, not only from the South, but from all over the United States as well as from several foreign countries.

The St. Louis Medical Society extends a very cordial invitation to all physicians in good standing in their State and Provincial medical societies to attend this meeting.

SPECIAL PROGRAM UNDER DIRECTION OF THE MAYO FOUNDATION

A special program of lectures and demonstrations in medicine will be held under the direction of The Mayo Foundation from November 11 to 15, inclusive. Mornings will be devoted to surgical and medical clinics. In the afternoons and evenings symposiums will be conducted on gastro-enterology, postoperative chest complications, hematology, diseases of the rectum and anus, treatment of syphilis, some aspects of endocrinology, and physiotherapy, including fever therapy. In addition one clinico-pathologic conference will be held.

While this program is arranged primarily for the Fellows of the Foundation, visiting physicians are invited to attend.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

OFFICERS 1935-36

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Dr. John R. Neal, Springfield.

Dr. Harold M. Camp, Monmouth.

Dr. Roland L. Green, Peoria.

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Hostess: Mrs. A. H. Brumback, 1503 W. Jackson Blvd., Chicago.

Chaplain: Mrs. J. P. Simonds, 25 E. Walton Place, Chicago.

There will be a meeting of the Board of Directors at the Palmer House in Chicago, at 10 A. M., Saturday, October 19, 1935.

MR. W. D. CHAPMAN, President.

IRRITATION FROM CIGARETTE SMOKE

Abstract

Flinn, Frederick B.—Some Clinical Observations on the Influence of Certain Hygroscopic Agents in Cigarettes. Laryngoscope, 1935, XLV No. 2, 149-154.—Mulinos & Osborne (Pharmacology of Inflammation III. Influence of Hygroscopic Agents on Irritation from Cigarette Smoke. Proc. Soc. Exper. Biol. and Med. 32: 241-245, 1934) showed, using animals, the edema caused by cigarettes in which diethylene glycol was used as hygroscope agent to be less than that from cigarettes in which glycerine was used. This paper reports the effects of cigarettes, in which diethylene glycol and glycerine respectively are used as hygroscopic agents, on the mucous membrane of the upper respiratory tract.

"At the beginning of the experiment 73.7 per cent. showed on examination a congested condition of the pharynx and larynx, 66.2 per cent. had coughs, 7 per cent. had an irritation of the tongue, —. After smoking the diethylene cigarette for from three to four weeks the congestion had disappeared in 62.3 per cent. and the throat looked normal. The other 37.7 per cent. showed considerable improvement. The cough disappeared in 75.6 per cent. while in 26.4 per cent. no change could be detected. The tongue conditions cleared up completely in each case." On putting the subjects back on glycerine treated cigarettes, "Eighty per cent. showed a return to the congested condition of the pharynx and larynx inside of a week and in many cases the patient refused to continue to smoke them and the situation had to be explained to them. Only 34 per cent. had a return of the cough and in practically every case the tongue condition returned."

"Summary: The combustion products of glycerine when it is used as a hygroscopic agent in cigarettes will under certain conditions cause an irritation of the throat. The combustion products of diethylene glycol cause only a slight irritation, if any, of the throat. There is some evidence that they may be beneficial where irritation is present."

INHERITANCE, NOT GLANDS, DETERMINES PERSONALITY

Personality is not so much a matter of glands as of inheritance, Dr. Walter Freeman, of George Washington University, said at the meeting of the American College of Physicians.

The endocrine glands can bring out personality and enhance it by increasing the energy of the individual, but they cannot change the direction in which the energy will be expended, nor the type of personality an individual has. That is determined by genetic factors operating before he is born. In other words, you cannot make an extrovert out of an introvert by feeding him gland extracts. The effect of glands on personality is a matter of quantity, not quality.

Dr. Freeman's statements were based on studies of 1,400 cases of disease of the endocrine glands. Harmonious functioning of the glands is necessary for stability of temperament, Dr. Freeman pointed out. Irritability, or sensitivity of the nervous system, which would be reflected in the personality, may be caused by lack of balance between the endocrine glands, by an excess of thyroid hormone or a deficiency of parathyroid hormone, for example.

Science News Letter.

THE PRACTICE OF MEDICINE MUST BE A PROFESSION TO SUCCEED

During the thirty years of my experience in Germany I witnessed a deterioration of the medical profession. It was gradual. It came about by the removal of the sanctions of preferment by skill and the substitution of preferment by convenience. What I meean is that an insurance scheme soon becomes a business—it must do so to succeed, while the practice of medicine must be a profession to succeed at its best, and the two will not mix. In Germany the physician who was most adaptable to the advancement of the plans of the insurance officials, and who most pleased the patient for

reasons perhaps quite other than skill, obtained the most rapid preferment. It is true there were possibilities left which made it possible to adhere to higher standards—I for instance had such a possibility being a specialist—but many men who might have gone far were ruined by the stultifying panel practice.—Paul G. Frank, M. D., in the New York State Journal of Medicine.

THE LURE

"What bait do you use," said a Saint to the Devil,
"When you fish where the souls of men abound?"
"Well, for special tastes," said the King of evil,
"Gold and Fame are the best I've found."
"But for common use?" pursued the Saint.
"Ah, then," said the Devil, "I fish for Man, not men,
And a thing I hate
Is to change my bait;
So I fish with a woman the whole year round."

DO YOU KNOW THAT—

Cleveland Academy of Medicine holds yearly an exhibit of the hobbies of the physicians of the Society?

Having discovered that Bergamot Oil is equal to Phenol in its action on the tubercle bacilli, a new disinfectant is being developed?

It has been said that "the infant mortality rate is the most sensitive index that we possess of social welfare"?

A New York State official claims that more than any one other factor the improvement of the public milk supplies has been the most responsible for lowering the infant death rate in the past number of years?

The general death rate of children in the United States is about half the death rate of Indian children?

The tuberculosis death rate of the United States is about one-seventh of the death rate among the Indians?

It has been estimated that in New York City diabetes is more prevalent than tuberculosis?

In the past seventeen years trachoma has been reduced among the children of the Jewish schools in Palestine from 34% to 6.3%?

It has been estimated that about 7% show a natural immunity to dental decay?

The New York Dental Society has made arrangements to give advice by radio in cases of serious tooth trouble among the American sailors at sea?

WARNING AGAINST THE USE OF DINITROPHENOL

On the basis of observations in other countries—particularly the United States—the federal bureau of health has called urgent attention to the dangers that may be associated with the use of dinitrophenol by persons unfamiliar with its properties. Dinitrophenol and preparations containing this substance, if used at all, should be used experimentally and only under constant observation in clinics and hospitals, especial care being taken to determine the therapeutic dosage on the basis of the body weight. The federal bureau of health will, if necessary, adopt requisite measures for the prevention of damage to the health of the population. Thus far, according to the best information obtainable, dinitrophenol is little used in Germany.

UNSPECIFIC CHRONIC EPIDIDYMITIS

P. W. Braestrup, Copenhagen, says that in the majority of cases this disturbance is due to transplantation by the canalicular route of an inflammation from the urethra. The symptoms in chronic and subacute epididymitis resemble those of tuberculosis epididymitis, and clinical distinction may be impossible. Treatment consists of rest in bed and elevation of the scrotum for from eight to ten days. In the mild cases, in which the symptoms tend to recede rapidly, conservative treatment is continued; in the other cases, resection of the epididymis with the vas deferens is then done. Urethritis was confirmed in six of the eighteen cases reported, and in three there was pyuria. Five had a history of trauma. Fourteen were treated surgically; hemicastration was necessary in only one. The diagnosis was verified microscopically.

GIANT INFANTS IN MATERNAL DIABETES

Fischer, Leipzig, demonstrates with reports in the world literature that the infants of diabetic mothers frequently are of excessive weight. On the basis of a general analysis of the carbohydrate metabolism and of the changed metabolic conditions during pregnancy, the relations between mother and fetus, as regards the carbohydrate metabolism, are discussed. It is assumed that the increased maternal blood sugar content causes an oversupply of dextrose in the fetal circulation. The placenta supposedly plays no active part in this process. Since the fetus has an adequately functioning pancreatic island apparatus relatively early during its existence, it is capable of storing the oversupply of sugar in the form of glycogen. Moreover, the fetus develops beyond its normal size. The aid given to the maternal organism by the presence of a functioning fetal pancreas cannot be explained by a passage of insulin from the fetus to the mother but is rather the result of the continuous drawing off of considerable amounts of blood sugar.

JUST LIKE 'EM

They had been happy for a year. Then, one morning, the wife came downstairs to breakfast morose and wretched. She had no appetite, and would scarcely say a word.

"Come now, dear," said the husband, "if I don't know what's the matter, I certainly can't make it right, can I?"

"John," she said, "if ever I dream again that you have kissed another woman, I wont speak to you as long as I live."

NOTHING TO WEAR

"The dances are quite different today from what they were years ago."

"Indeed they are. In those days when a woman had nothing to wear she stayed at home."

Original Articles

MENINGOCOCCIC MENINGITIS IMPORTANCE OF INTRAVENOUS THERAPY

ARCHIBALD L. HOYNE, M.D.

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This subject is of exceptional importance at this time for two reasons: 1. There is an increased incidence of meningococcic meningitis in the United States. 2. We have improved methods of treatment.

Properly speaking, the term meningococcic meningitis is no more correct when applied to all types of meningococcic infection than is the expression infantile paralysis when used to describe all forms of poliomyelitis. A meningococcic infection may exist without meningitis, just as poliomyelitis can occur without paralysis. And with our recently acquired knowledge of this disease, it seems to me that an analogous comparison with poliomyelitis may also be made in another respect. Poliomyelitis is now generally regarded as a systemic infection and any form of paralysis that occurs is often viewed as a complication rather than a necessary part of the disease. In like manner, a meningococcus invasion should be considered as a general infection due to the meningococcus and when meningitis develops it should be looked upon as a complication due to a localization of the infection. Such an hypothesis is based on observation and treatment of approximately 2,500 cases during a period of years. Moreover, it is my expectation that sufficient evidence will soon be adduced to support this opinion without contradiction.

Because of the foregoing reasons, we have offered a new word "meningococcia"[1] and what we believe is a new classification for meningococcic infection. "Meningococcia" was suggested to include: 1. Meningococcic meningitis, 2. Meningococcemia with meningitis, 3. Meningococcemia without meningitis and 4. Meningococcus carriers.

If you accept the theory herein presented, its bearing on the treatment of meningococcic meningitis is readily apparent. Instead of merely attacking the complication at its site (meninges), treatment must be directed against a systemic disease, for on the basis of Ferry's work it seems apparent that it is the soluble toxin of the meningococcus which is primarily responsible for the symptoms of the disease.

Although we had no scientific foundation for our conclusion as early as 1918,[2] still we believed even then that antimeningococcus serum was of marked benefit when administered intravenously. Since that time, until the fall of 1933, all adult meningococcic meningitis patients admitted to my service at the Cook County Hospital were expected to receive antimeningococcus serum intravenously. When it was decided to test the efficiency of Ferry's[3] meningococcus antitoxin at the Cook County Hospital, all patients admitted to the Contagious Disease Department with meningococcic infection were treated intravenously. This was done regardless of age and irrespective of whether antitoxin or antimeningococcus serum was administered. About the same time a corresponding form of treatment was adopted for all meningococcus patients entering the Chicago Municipal Contagious Disease Hospital, although no antitoxin therapy was applied. It is this latter group, comprising 233 patients, with which we are principally concerned here. This total comprises all the meningococcus cases admitted during the years 1933, 1934, and for the first three months of 1935.

In Table 1 cases and deaths are exhibited according to age groups. The number of 48 hour deaths, that is those patients who died within that period of time after entering the hospital, is also set forth and the fatality rates are given. It will also be noted that the clinical diagnosis

TABLE 1

233 MENINGOCOCCIC MENINGITIS CASES.

Age	Cases	Deaths	48 Hr. Deaths	Fatality	Fatality Exclusive 48 Hr. Deaths	Confirmed Diagnosis Culture	Confirmed Smear	Confirmed %
Under 1	11	6	3	54.5%	37.5%	2	8	91
1-5	52	9	4	17.3	10.4	29	21	96
6-10	35	8	8	22.5	0.0	19	12	88
11-15	51	5	2	9.8	6.0	25	25	98
16-20	27	8	5	29.6	13.6	16	8	88
21-25	18	8	4	44.8	28.5	10	7	94
26-30	11	4	2	36.3	22.2	6	4	91
31-35	11	3	1	27.2	20.0	8	2	91
36-40	5	4	2	80.0	66.6	4	1	100
41-45	2	1	1	50.0	0.0	0	2	100
46	10	6	3	60.0	42.8	3	6	91
Total	233	62	35	26.6	13.6	123	96	94

From the Municipal Contagious Disease Hospital, Chicago Board of Health.

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was confirmed by means of smear or culture in 93%. As might be expected, the two extremes of life tend to give the highest fatality rates, although this is not strictly so of the cases in this table. In the third five-year period, namely from eleven to fifteen, the chances of recovery seem best.

The method of treatment in meningococcia should be determined by the classification within which a particular patient is placed. Nevertheless, all patients with the exception of carriers should receive intravenous therapy. This holds true whether standard makes of antimeningococcus serum or Ferry's meningococcus antitoxin is to be administered. As proof of this assertion the low fatality rate of 26.6% for 233 cases illustrated in Table 1 is offered in evidence.

In class 1 meningococcus meningitis patients receive a lumbar puncture and spinal fluid is withdrawn slowly until it drips. Undiluted antimeningococcus serum or meningococcus antitoxin is then introduced through the needle by the gravity method. The amount of serum administered should be less than the volume of spinal fluid released. The spinal fluid is immediately examined for the presence of meningococci in order that the clinical diagnosis can be confirmed. A cell count and culture of the spinal fluid should also be made at once. With the finding of the organisms preparations are made for intravenous therapy.

Antimeningococcus serum or meningococcus antitoxin should always be diluted when given intravenously. Although we have seldom found it necessary, it is well to have adrenalin convenient in case of any unpleasant reaction. The serum or antitoxin is placed in 10% glucose or normal saline of equal volume or, preferably, twice the volume of the remedy.

As a rule we use 105 cc. of antimeningococcus serum or 90 cc. (30,000 units) of meningococcus antitoxin in 150 cc. to 250 cc. of 10% glucose. If necessary the vein should be cut down on for the required introduction. The solution must be warm and can be given by the drip method over a period of an hour or even more. Generally but one intravenous treatment of this kind is needed. However, it may be repeated if it seems advisable. The intraspinal therapy is repeated every 24 hours until the spinal fluid is clear and shown to be free of organisms by laboratory methods including culture.

In class 2, where the presence of petechiae clearly indicate meningococcemia as well as meningitis, the value of intravenous therapy is not likely to be disputed. The treatment of patients in this class is the same as for class 1 but a repetition of the intravenous dose is often an important factor in promoting recovery.

In class 3 the clinical findings are not the same as in class 1 and class 2. Consequently, we feel justified in deviating from a long accepted mode of treatment and have inaugurated what we believe is a new plan of procedure.

In class 3, the patient may be literally covered with petechiae and in coma yet there is no rigidity of the neck. In fact, there are no signs indicative of meningitis. Such a patient is suffering from an overwhelming toxemia. The clinical diagnosis of meningococcemia is confirmed by blood culture or by means of smear examination from a needled skin lesion (petechia). A patient of this kind is treated by massive doses of antimeningococcus serum or meningococcus antitoxin intravenously without resorting to lumbar puncture. The customary initial intravenous dose of the remedy may be repeated daily as long as seems desirable. Frequently the response of patients so treated is remarkable. Often within 24 hours the mentality is good, the temperature is approximately normal, and the general condition excellent. If patients in this class are given intraspinal medication, meningeal symptoms are likely to develop and may be explained by an irritation of the meninges due to the serum and resulting in a meningitis that was not originally present. We have had a number of recovered patients treated at the Cook County Contagious Disease Hospital without the introduction of serum spinally and in several instances without even a lumbar puncture.

Cisternal punctures need not be resorted to unless there is a definite block in the spinal canal. Ventricular puncture is rarely indicated. Irrational patients often require restraint and this method of control seems preferable to prescribing morphine which may cause cerebral edema. If a sedative is to be given paraldehyde will usually quiet the patient without unfavorable action. In all cases the eyes should be carefully examined. If there is the slightest evidence of conjunctivitis, atropine in ¼% solution should be dropped in the conjunctival sac until the pupils are well dilated.

In Table 2 of our series the cases are arranged according to sex and color as well as age, and it will be noted that there is the customary preponderance of males. Race and color seem to have no special significance in relation to the attack rate for this infection. It is rather a question of susceptibility and exposure. It may also be seen in Table 2 that the average duration of illness before serum treatment was 4.1 days. In this connection an interesting observation may be made among hospital patients with meningococcic meningitis. As a rule the higher death rates will be found among the patients who receive their first serum treatment late rather than among those who are given very early treatment. The explanation is that in the fulminating type of infection a prompt diagnosis is likely but death is probable in spite of treatment. On the other hand, among the less severe cases there may exist a marked resistance on the part of the patient. So although the diagnosis may be delayed there is usually a quick response when serum treatment is instituted. Nevertheless, the earlier treatment is begun the more favorable the outcome and there is no doubt that the fatality rate could be reduced considerably if all cases were diagnosed at the very onset of the infection.

In Table 3 complications are arranged in relation to the various age groups. It will be noted that arthritis is the most frequent. However, it is by no means the most serious. Only rarely does suppuration occur. Pneumonia, to which is commonly ascribed an important role in the fatality rates of meningococcus meningitis, was a factor in but five instances among the 62 deaths. Loss of vision and deafness are two of the major complications among those who survive meningococcic meningitis. In three of the 17 instances where there was loss of vision, blindness was bilateral. The eye condition may be an endophthalmitis, a panophthalmitis or an optic atrophy, and an early or late conjunctivitis is always a foreboding signal of danger. Although deafness is sometimes unilateral, when it occurs both ears are generally affected. If there is complete loss of hearing, it is practically always permanent. But if there is merely impairment of hearing full restoration of this faculty is possible eventually.

Hydrocephalus is the complication most to be feared in infants. Continuous spinal drainage by means of a rubber catheter as recently reported by Love[4] offers some hope for such conditions.

In Table 4 the 171 recovered patients are divided according to age groups and years of admission. Furthermore, it may be said that if reference to season is made, we find that meningococcic infections are particularly prevalent in the months of March and April.

Petechiae are shown to have been very common in our series being present in 64.3% of the recovered patients. Herpes, on the other hand, which is sometimes regarded as a favorable prognostic sign, occurred in but 15% of the recovered patients.

The average total amount of serum in cubic centimeters for the recovered patients according to age groups is also presented in Table 4, as

TABLE 2

233 MENINGOCOCCIC MENINGITIS CASES.

					Recovered Cases			Fatal Cases	
	Sex		Color		Aver.	Aver. No.	No.	Aver. No.	No.
Age	M	F	W	B	Days Ill	Punc.	Cist.	Punc.	Cist.
Under 1	6	5	10	1	5.8	5.2	3	2.5	4
1- 5	23	29	48	4	3.9	20.5	2	2.5	4
6-10	16	19	32	3	3.0	7.7	4	1.7	0
11-15	39	12	48	3	3.8	8.1	0	3.6	1
16-20	21	6	27	0	4.3	8.0	0	4.2	1
21-25	13	5	18	0	4.0	7.4	0	5.0	2
26-30	6	5	9	2	3.0	7.7	0	3.5	1
31-35	6	5	7	4	4.7	8.4	1	3.0	2
36-40	2	3	4	1	3.6	10.0	0	3.5	2
41-45	1	1	2	0	3.5	11.0	0	1.0	0
46	4	6	9	1	5.7	15.7	1	3.8	3
Total	138	95	214	19	4.1	9.9	11	3.1	20

TABLE 3

233 MENINGOCOCCIC MENINGITIS CASES. COMPLICATIONS

Age	Cases	Arthritis	Pneumonia	Loss of Vision	Loss of Hearing	Pericarditis	Hydrocephalus	Per Cent with Complications
Under 1	11	1	0	0	0	0	1	18.0
1- 5	52	9	1	7*	2	0	0	36.5
6-10	35	3	0	2	6	0	0	31.4
11-15	51	9	1	1†	7	1	0	37.2
16-20	27	9	2	0	2	0	0	48.1
21-25	18	10	0	2	0	0	0	66.6
26-30	11	5	1	1	1	1	0	81.7
31-35	11	4	0	0	1	1	0	54.5
36-40	5	0	0	2	0	1	0	60.0
41-45	2	0	0	1	0	0	0	50.0
46-	10	2	0	1	1	0	0	40.0
Total	233	52	5	17	20	4‡	1	42.4

*Two cases, both eyes.
†Both eyes.
‡All died.

TABLE 4
MENINGOCOCCIC MENINGITIS
171 RECOVERED CASES

Age	Cases 1933	Cases 1934	Cases 1935	Petechia	Herpes	Average Amount of Serum	Average Number Days in Hospital
Under 1	3	2	0	1	0	61.2	15.0
1- 5	22	15	6	31	3	125.0	17.3
6-10	17	8	2	17	5	183.3	17.8
11-15	23	21	2	28	5	178.9	16.4
16-20	13	6	0	13	4	174.9	17.8
21-25	6	4	0	8	2	168.7	16.5
26-30	4	3	0	6	2	154.2	21.5
31-35	5	3	0	3	2	188.3	18.0
36-40	0	1	0	1	1	225.0	16.0
41-45	1	0	0	0	0	187.0	23.0
46-	1	3	0	2	2	270.0	27.7
Total	95	66	10	110	26	174.2	18.8

well as the average time of hospitalization. The average total amount of serum for each of the 171 recovered patients was 174.2 cc. and the average number of hospital days was 18.2.

The majority of the recovered patients were treated during the year 1933 but it was not until the last month of that year that intravenous therapy was adopted as routine treatment for all patients. There were 65 recovered patients who received an average of 57.2 cc. of serum intravenously (always diluted) and 33 of the cases that terminated fatally were similarly treated. Among the latter the average dose of serum intravenously was 59 cc. We now feel convinced that much larger doses are desirable for intravenous treatment, and that the efficiency of antimeningococcus serum is not dependent on any antibacterial qualities it may possess, but wholly upon whatever amount of antitoxin it happens to contain. For this reason, meningococcus antitoxin should give superior results.

Class 4 of meningococcia includes only meningococcus carriers. As a rule, carriers require no special treatment in so far as their own personal safety is concerned. The reason for this is the acknowledged fact that known carriers seldom develop the disease. They are carriers without symptoms of the disease because they are not susceptible. Nevertheless, a meningococcus carrier should be regarded as a source of danger to others, for if he comes in contact with susceptible individuals he may transmit a serious form of the infection to them. Therefore, carriers should be isolated. A dose of antimeningococcus serum or meningococcus antitoxin may be injected in the muscle as a precautionary measure, though the worth of such a procedure has not been fully determined. Fresh air and sunshine will probably accomplish as much in clearing up the carrier condition as the use of antiseptic nasal douches and gargles.

In the past, fatality rates for meningococcic meningitis have been exceedingly high, often ranging from 40 to 90%. However, with a continuation of the progress recently made through improved therapeutic measures a marked reduction in mortality figures seems assured.

Eventually the general level of fatality rates for meningococcic infections will probably not exceed those for diphtheria at the present time.

SUMMARY

1. A new word "Meningococcia" and a new classification for meningococcic infections is discussed.

2. Four tables with statistics relating to 233 cases of meningococcic meningitis are presented.

3. The importance of intravenous therapy is emphasized.

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DISCUSSION

Dr. Winston H. Tucker, Springfield: I should like to say a few words about our experience in Springfield with meningococcus meningitis. During the first three months of 1935 there were 70 cases of meningitis in this State outside of Chicago. During this same period there were approximately twice as many cases in Chicago. Of the 70 downstate cases, 23 occurred in Springfield. The Illinois Department of Public Health cooperated with the Springfield authorities in an attempt to control the outbreak.

Of the first six cases which occurred, only one had a fatal termination, but as the outbreak progressed the disease became more fulminating in character and the following nine cases had a fatal termination. As you can readily understand we were much concerned, because the several types of antiserum which were available proved ineffective.

At this critical time Dr. Hoyne's paper appeared in the J.A.M.A. and we decided to give the meningococcus antitoxin described therein a trial. Since that time eight new cases have occurred in Springfield and all of these patients have received meningococcus antitoxin by the

intravenous as well as the intraspinal route. No fatalities have occurred in this group of eight cases. Children received 60 cc. of antitoxin in approximately 120 cc. of 10% glucose by the intravenous route daily until definite signs of improvement were manifested. Adults received 90 cc. of antitoxin in approximately 200 cc. of 10% glucose by the intravenous route, as well as 30 cc. intraspinally. In our experience we have found this antitoxin to be of great value as a therapeutic measure.

I should like to illustrate the role which overcrowding plays in the spread of meningococcus meningitis. There were three Negro families in which there was a total of 11 persons living in one small four-room house. A fourteen year old boy was brought from this house to the hospital in a comatose condition, and it was found that he was suffering from meningococcus meningitis. He lived only a few hours after admission to the hospital. Two days following the death of this boy, two little girls in this same house, aged three and five years, developed meningitis. Meningococcus antitoxin was promptly administered and both of these children recovered.

I do not believe that Dr. Hoyne mentioned the occurrence of serum sickness in connection with the administration of meningococcus antitoxin. All of the eight patients who received this antitoxin developed generalized urticaria and a moderate elevation in temperature seven or eight days following the first injection. In some instances it was necessary to administer epinephrin. Urticaria persisted for two or three days, after which it gradually disappeared.

Dr. Hoyne has told you that meningococcus are often found in the blood stream as well as in the spinal fluid. Some investigators look upon the invasion of the spinal fluid by the meningococcus as a terminal phase of a generalized infection. It is for this reason that the administration of antitoxin by the intravenous route appears to us to be more important than administration by the intraspinal route.

Dr. R. E. Cummings, Chicago: Dr. Hoyne alluded in his paper to the possibly good prognostic value of the presence of herpes. Two years ago I listened to the presentation of a paper on a similar subject in the presentation of a hundred cases. The doctor in his presentation laid special stress on the good prognostic value in those cases of the presence of a definite opisthotonos and he went so far as to state that the greater opisthotonos the better the prognosis. He seemed to stress it. I know of no particular reason for it and the doctor made no reference to it. I wonder if he would tell us whether opisthotonos in a meningitis case is a good or bad sign or is there any value in it

Dr. Hoyne: Does it hold any particular relation as to the good or bad prognostic outcome of the patient? Not necessarily.

Dr. Cummings: Dr. Blatt, you recall the paper I have reference to. I never could quite figure that out but it was definitely alluded to in his paper.

Dr. Hoyne, in closing: I think the presence of opisthotonos does not necessarily indicate a bad prognosis, when occurring early in the course of the disease. Under such circumstances, good recoveries are often observed. However, when opisthotonos develops late, it usually signifies marked involvement at the base of the brain, frequently causing a block in the spinal canal, and this may explain a dry tap when lumbar puncture is undertaken. These cases require cistern punctures which as a rule are unnecessary. Late opisthotonos is generally a bad omen for the patient.

In reference to my remarks about treating patients solely by the intravenous method, I did not mean to imply that therapy can be administered to most patients in this manner. The cases that can be treated without lumbar puncture are the exceptional cases. Perhaps it is somewhat a matter of judgment. But many times a patient with meningococcemia who shows no signs of meningitis will make better progress without lumbar puncture, provided sufficient quantities of serum are given intravenously.

PNEUMONOKONIOSIS

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Pneumonokoniosis became a disease entity when man began to specialize in certain trades or occupations which were dusty. When early man found that certain other men could produce flints, arrow-heads, metals, and pottery better and easier than he could, localization of certain future industries and mines became a certainty. Sir Charles Lyell[1], and Dr. Isaac Taylor[2] have described such localization in prehistoric factories for the manufacture of flint implements. With this localization, dust hazards developed and respiratory diseases increased. These respiratory diseases such as asthma, pneumonia, bronchitis and tuberculosis, with dust inhalation as a predisposing factor, are called pneumonokonioses.

Under the general term of pneumonokonioses, various names are given to a type of disease produced by the particular dust inhaled; for instance, silicosis when produced by dust containing silicon dioxide. This is also known as miner's phthisis, miner's consumption and rot; asbestosis when produced by the inhalation of asbestos; siderosis when the disease is caused by the inhalation of metallic dust; byssinosis, when due to the inhalation of cotton dust; and, anthracosis when due to coal dust. Most city people have anthracosis in varying degrees which is only seen at the autopsy table. In the older literature

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other terms are found for pneumonokoniosis. F. Oppert,[3] 1866, used the word melanosis of the lungs for diseases arising from the inhalation of dust. He also spoke of red lung disease as erythronosis, and blue lung disease as glaukonosis. Under this latter heading, I believe that he meant typical cases of silicosis, for in advance cases, the lungs have a slaty appearance. In 1845, Dr. Makeller[4] wrote in the *Edinburgh Monthly Journal* on black phthisis (induration induced by carbonaceous accumulation in the lungs of coal miners). Meinel[5] in 1869, proposed the name of chalicosis or chalicoconiosis respectively, as corresponding to the conception of a sand dust inhalation disease.

The Committee on Pneumonokoniosis of the Industrial Hygiene Section of the American Public Health Association[6] defined silicosis as a "disease due to breathing air containing silica (SiO_2), characterized anatomically by generalized fibrotic changes and the development of miliary nodulation in both lungs, and clinically by shortness of breath, decreased chest expansion, lessened capacity for work, absence of fever, increased susceptibility to tuberculosis (some or all of which symptoms may be present), and by characteristic x-ray findings." In case of death, a diagnosis must rest upon two findings; a characteristic fibrotic change seen in sections of the lungs microscopically; and, second, by a chemical examination showing an excess of silicon dioxide over that normally found, 2 mgms. or more per gram of dried tissue. However, fibrotic changes are not always seen in sections of the lungs until the silicon dioxide content is over 5 mgms. per gram of dried tissue. In three cases with a silicon dioxide content of over 12 mgms. per gram of dried tissue, the characteristic fibrotic whorls were absent. (The sections were examined by Drs. J. J. Moore and Ludwig Hektoen.) Gardner reported in a recent lecture, in Chicago, a similar condition. These findings may be easily verified by other experts, while there is nearly always a great disparity in the testimony of clinicians and radiologists.

In different countries, silicosis has been defined arbitrarily in the various stages. In the United States it is divided into first, second and third stage. The stages are defined as follows:[7] "The first stage means that definite physical signs of damage to the lungs has resulted from exposure to dust. The second stage means that definite and specific physical signs of silicosis are or have been present and that capacity for work has been impaired by the disease, though not seriously. The third stage means that specific physical signs of silicosis are or have been present and that the capacity for work has been seriously and permanently impaired by the disease."

Early History.—Many members of the medical and legal fraternities look upon pneumonokoniosis as an entirely new disease, never having heard of it or seen cases of it until recently. However, Hippocrates[8] in his "Epidemics," speaks of a metal digger who "has his right hypochondrium bent, a large spleen, and a costive belly; he breathes with difficulty, is of pale wan complexion, and is liable to swellings in his left knee." Here he speaks of shortness of breath, which is invariably the first, and in some cases the only objective sign of damage caused by dust inhalation. George Bower[9], who wrote under the "non de plume" of Georgius Agricola, in his famous work "De Re Mettallica," published in 1557 (translated by Herbert Hoover), mentions asthma due to the inhalation of dust in the blood and lungs, "when the dust is corrosive it ulcerates the lungs and produces consumption, hence it is, that in the Carpathian Mountains there are some women who have married seven husbands, all of whom this dreadful disease has brought to an early grave." Lohneiss[10], in 1690, referring to miners, describes the effects on them as follows: "The dust and stone fall upon the lungs, the men have lung disease, breathe with difficulty, and at last take consumption." Ursinius[11], in 1652, reported two forms of mountain sickness caused by the inhalation of dust. Little was written upon the subject of pneumonokoniosis from that time until 1717, when Ramazzini[12], wrote his famous book, "Diseases of Tradesman," incorporating his views from a personal investigation of mines and industry. The description he has portrayed of silicosis and other forms of pneumonokoniosis has changed but little up to the present time. The names of Bubbe[13], 1721, Leblanc[14], 1795, and Johnstone[15], 1799, were all aligned to the early history of pneumonokoniosis. Pierson[16] in 1813 applied the term "anthracosis" to lungs containing carbon particles. Collis[17] has shown that today the flintknappers of Brandon, still using

tools similar in shape to the deer-horn picks of their prehistoric ancestors, suffer a terrible mortality from phthisis induced by flint dust generated in their work. Early last century, Bourgoin[18] pointed out the ravages produced among the population of Meusnes in France by the introduction of the gun-flint industry. Chateauneuf[19] states that all who follow this flint industry are killed before their time, "for them, there is no old age." The doctors and officials of that time gave it as their opinion, the pulmonary phthisis was induced by prolonged inhalation of dust generated from working flints.

Harmful Dusts.—From the history preceding, some of the sources of the dust evil have been indicated. There are two important factors in the etiology of a dust-borne disease; the first, is the character and the amount of the dust inhaled; and, the second, the susceptibility of the individual to the influence of the dust inhaled. From the chemical standpoint, there are two types of dust, the organic and the inorganic. Any inorganic dust is capable of producing definite pathological changes in the lungs, if the exposure is sufficiently long. Collis[20] has stated in general that, "dusts appear to be more injurious as their chemical composition differs from that of the human body, or from the elements of which the body is normally composed.

1. *Organic Dusts.*—Workers exposed to organic dusts develop severe bronchitis. The least harmful kind of dust seems to be wheat flour dust, for it produces only a slight bronchitis and not fibrosis as the silica containing dusts. I have seen x-rays of two individuals claiming diseases caused by flour dust which did not show changes such as are seen in the first stage of silicosis. The changes are no more marked than are found in the chests of the average person living in our cities. Ramazzini[21] early describes a causal relationship between the dust inhalation and consumption, from hemp, and from the sifting of corn, stating that the men are "so plagued with this powder or dust, that when work is done they curse their trade with a thousand imprecations." The throat, the lungs, and the eyes, sustain no small damage by it. Some of the symptoms from inhaling organic dusts, may be due to the allergy acquired. Landis[22] examined the protocols of 50 persons who had been employed for various lengths of time as textile workers, and found "no instance where there was the slightest reference to changes in the lungs comparable to those noted in the case of those exposed to inorganic dusts."

2. *Cement Dust.*—Thompson and his co-workers[23] found, that after an investigation of health of workers in dusty trades, "the results indicated that the calcium dusts created in manufacturing Portland cement do not predispose workers to tuberculosis nor to pneumonia. The exposed workers experience, however, an abnormal number of attacks of diseases of the upper respiratory tracts even more than exposure to the calcium dusts." Schott[24] came to the conclusion that inhalation of cement dust over a period of years may lead to chronic catarrh, bronchitis, emphysema with changes of the hilus, and that the inhalation of cement dust does not predispose to a primary tuberculosis, that men may work in cement factories with proper sanitary appliances for many years without occupational diseases. Engel[25] considers the cement dust to be harmless. Pancoast and Pendergrass[26] report a roentgenological transformation in the lungs of 20 cement workers out of 25. These changes, however, were of slight nature. Dr. Hack[27], director of the Tuberculosis Hospital in Heidelberg, states that the cement workers enjoy a better state of health than many of the neighboring communities. Kaestle[28] states that the cement coniosis belongs to the benign coniosis. The explanation of a low death rate from tuberculosis and a small amount of fibrosis of the lungs is due to the fact that the dust is soluble in the body fluids, causing only a little damage to the lung tissue. An investigation of a fullers' earth plant has led me to the same conclusion with regard to this dusty occupation as was reached by Thompson and his co-workers in the cement industry.

3. *Coal Dust.*—There is a low rate of tuberculosis among coal miners. Coal dust was thought at one time to offer protection against tuberculosis, but the evidence is not certain. Improved conditions in ventilation of the mines, has removed coal dust to a large extent as a factor in causing pulmonary disease. The individuals work for many years in the mines, the dyspnea increasing with the advance of time, the men usually having a bronchitis, dying in old age of diseases found in people non-industrially

connected. In cases of marked anthracosis only a small amount of silicon dioxide (1.8 mgms. per gram of dried tissue) was found[29].

4. *Silica Dust.*—Silicon dioxide is a common constituent of all our food whether of animal or vegetable origin. It is found in the air we breathe and the water we drink. The Chicago Board of Health reported in 1931 that there was an average fall of siliceous matter of 134.03 tons per square mile per month. In 1932, there was a fall of 129.30 tons, with the smallest amount (63.127 tons) recorded in 1926. The average silicon dioxide content of Lake Michigan water is 3.3 parts per million. Green[30] reports 119 tons of material (containing by chemical analysis 77% ash) per square mile per month was deposited from the atmosphere in a collection station in the down town district of Cleveland, Ohio. If this deposit of 119 tons per square mile per month is typical of all of our large cities, we would think that considerable harm could be done, for we know that the inhalation of this dust causes anthracosis in city dwellers. Any process which uses material containing silicon dioxide or gives off silicon dioxide is a potential source of silicosis. Dusts from quartz, quartzite, flint and sandstone are the most harmful. This is due to their content of silica or silicon dioxide. The finer the dust, the more dangerous. Particles greater than 10 micra in diameter cannot pass through the finer bronchioles. Microscopical examinations of the silica found in the lungs show that 70% of the silicon particles have a diameter less than one micron. When you consider that a micron is one twenty-five thousandth of an inch, the necessity of the removal of such fine particles from the air is imperative. Silica dust is generated in the polishing of mirror glass, the manufacture of grindstone, millstone, in sand blasting, the crushing of stone to make silica flour used in the manufacture of pottery, abrasive soap, in the manufacture of silica brick washing powders, sandpaper, silica paints, mining and quarrying of granite sandstone, and in all forms of mining where the ore is accompanied by a siliceous rock.

Dust Prevention.—Plini, the Elder[31], in his Natural History, speaks of the use of respirators to avoid dust inhalation. A similar device was spoken of by George Bower[32], 1557, who strongly advocated the ventilation of mines. In Altenberg, in Meisen, the men bound loose coverings (bladders) to their faces. "By this means the dust is not carried into the lungs and blood, and does not hurt the eyes." This is one of the earliest records of protection of the men from dust. Later, in 1713, Thomas Benson[33], in England, was granted a patent for a wet method to prevent the dry dust being inhaled by the grinding of flints. The introduction of exhaust fans and a supply of air free from dust to all workers will lessen the dust hazard, and in certain industries, the spray or wet method may be used to lessen the formation of dust. Russell[34], in his studies of workers in dusty trades, states that "when patients had been exposed long enough to develop silicosis and then changed to non-dusty occupations, they did not thus materially lessen their chances of escaping a final tuberculosis complication." A consensus of an opinion is that the quantity of dust in the air should not exceed 5 mgms. or three hundred million particles per cubic meter. It is only the particles less than 10 micra in diameter that are retained in the lung tissue. The larger particles are removed by the ciliated epithelium of the lungs, and it is these smaller particles that are dangerous, causing fibrotic change[35]. The smaller the particles, the more readily they would be acted upon by the fluorides of the blood, and more easily cause fibrosis from the tetrafluoride formed.[36a]

Symptomatology.—In any dusty atmosphere there is an irritation of the mucous membrane of the nose and throat, with sneezing and coughing to remove the inhaled particles. The particles that are retained are attacked by the bronchial secretions which dissolve some of the dust particles. The smaller particles are taken up by the phagocytic action of the macrophages which remove the particles from the alveoli or through the alveolar walls. The cough is usually the first symptom. At first, both are paroxysmal and productive, later is accompanied by a scanty expectoration. Later and often, the outstanding symptom is dyspnea.

As the fibrosis increases and reduces the lung ventilation, this symptom becomes very marked. The sputum may be stained with the kind of dust inhaled, the chest expansion is diminished, the breathing becomes more labored, and may be wheezing or asthmatic. In a later stage, there is pain in the side, which is probably due to an

early pleuritis. There is an absence of fever, night sweats are uncommon, there is little or no loss of flesh. The patient as a rule is pale in appearance. The chest is usually flattened anteriorly. On auscultation the breath sounds are unusually efficient in intensity. In early cases it is extremely difficult to distinguish in the physical examination differences from those noted in tuberculosis, and here we must depend upon radiographic examination for the presence or absence of tuberculous infection. And it is here where the experts differ so much upon whether silicosis caused the tuberculosis, or whether the tuberculosis was present with the silicosis implanted upon it. No method of clinical diagnosis can distinguish between a case of affected fibrosis and one of simple fibrosis. Hemoptysis, loss of strength and gastrointestinal symptoms are pronounced in the more advanced stages. However, when a diagnosis of silicosis is made, the withdrawal of the patient from the dusty atmosphere should suspend any further increase in the pathological condition. Both diseases may be present and the term tuberculosilicosis has been applied to this condition. Cavities have been reported in cases of silicosis without tuberculosis. It may be twenty years before the patient is incapacitated. In some instances, however, death has occurred within a year and a half from the time of exposure to the silicon dust.

Prognosis of Silicosis.—The prognosis depends upon several factors, the time of working at the dusty occupation, percentage and concentration of the silica dust inhaled. A person may work for twenty years or more before giving up work. Many of them would continue to work if economic conditions were such as would enable them to obtain employment. After the age of forty-five years the impairment becomes more noticeable. Men working at hard work in non-dusty trades also show the effects of their work after this age and this must be considered in giving an opinion upon the prognosis. Men after the removal from the dusty occupation may not die for fifteen years later, and a large amount of silica be found in their lungs.[36]

Once a person has silica in his lungs it is there to stay forever, for the lung tissue is never restored to normal, although there may be a quiescence of the inflammation, changes and symptoms. Susceptibility to pneumonia and tuberculosis is increased in all stages of silicosis but chiefly in the last stage. Every case of chronic bronchitis or pneumonia of a workman in a dusty atmosphere may be a potential cause for a suit.

Microscopical sections of the lung tissue after death may, under polarised light examination show "the connective tissue to be laden with siliceous particles and the alveoli to be distended with serous exudate and catarrhal cells."[37] In New Zealand and Tasmania, there is found a high incidence of pneumonia in the mortality returns of quartz-mining districts. Collis[38] concluded that "Pneumonia appears to be predisposed to by the inhalation of those dusts which are associated with an undue prevalence of bronchitis."

Diagnosis.—Under diagnosis, it is absolutely necessary to have a history of the exact occupation and exposure of each workman in the silica-containing dust, to have a complete physical examination with the symptoms, and to have x-ray pictures. "Just as in the case of bronchitis, the connection between the disease and dust inhalation must depend upon an intimate knowledge of the occupation followed, of the exposure to dust, and of the mortality prevalent in that occupation. A correct diagnosis is of importance because, with the known tendency to a fatal termination, every case from its onset, however apparently slight, must be considered serious and treated accordingly. Detection in the sputum of particles of dust known to be associated with pneumonia may assist in diagnosing the occupational sign of the attack."[39] In case of death sections of the lung should be examined for the characteristic fibrotic whorls, although in several cases where the silica content was high in the dried lung, only fibrosis was demonstrated microscopically. The silica content of the dried lung should be reported in every case of death having an occupational history of dusty employment. Too much stress should not be given to occupational history. In one instance a history was given of a man who had worked as a "sand-blaster." The case was ready for trial when the plaintiff was killed in an auto accident. A chemical examination of the lung gave only 1.8 mg. of silicon dioxide per gram of dried tissue which ruled out silicosis. Microscopical examination of sections of the lungs by Drs. Ludwig Hektoen

and Henry C. Sweaney failed to show fibrosis. Here there was no evidence of silicosis yet a suit had been instituted upon a history of exposure.

Compensation.—There are two groups of people who are intensely interested in silicosis: in the first group are the employers who are conducting industries in which there is an exposure to dust; the other group consists of thousands of people who gain their livelihood in these industries. In times of unemployment, a racket develops around the first group. Investigators employed by certain law firms talk to the unemployed who may have worked in sand-blasting, foundry work, sand mining, glass workers, miners in quartz and granite, metal grinders and polishers, and ask them if they know of anyone having the symptoms which have been given above. They then induce the individual to sign a contract and file a suit against his employer on the grounds that a pneumonokoniosis was contracted naming all the dusts that he might have come in contact with.

When cases reach the civil courts, the jurors usually award the plaintiff from twelve to twenty thousand dollars. To correct this condition, pneumonokoniosis should be placed under the Workmen's Compensation Act, or have a Federal Unemployment Bill passed similar to that of the Wagner Bill, where provision could be made for unemployment and insurance benefits. "In the event of an employee being physically or mentally disabled, he shall be entitled to a percentage of the maximum or minimum individual benefits provided for if he shall otherwise be able to qualify under the Bill."[40] The Factory Inspection Act could be amplified, better defined in regard to this hazard, and if the employer lived up to the provisions of the Act, the courts should not hold him liable. Silicosis does not come under the Workmen's Compensation Act in many states. However, in the State of Wisconsin, under the Workmen's Compensation Act, industrial insurance is compulsory. As a result of this enforcement employers have been able to secure industrial insurance even in cases where pneumonokoniosis and silicosis were a hazard.

The Workman's Compensation Act being remedial is to be liberally construed to carry out its purpose of placing the cost of industrial accidents and diseases upon the industry in which they occur as a result of the industry.[41]

The State of New York has recently passed an amendment (No. 2102, March 1, 1935) to the workman's compensation law including silicosis. "Silicosis and other dust diseases—shall be divided into two stages—one which does not cause disability but which indicates that it is hazardous to the employee's health to continue employment under further exposure to inhalation of dust, silica or harmful dusts and the second stage—that causes permanent disability either total or partial, by which the employee is disabled from earning his full wages in the work in which he was employed." In the second stage, compensation shall be paid at the rate of 66⅔% of the average weekly wage—and shall not exceed twenty-five dollars per week nor less than eight dollars per week—further provided that the total period of compensation payable shall not exceed two hundred and sixty weeks."

There should be established in each state having a large amount of dusty industrial work, quarries, and other places where highly siliceous material is handled, a medical board similar to that which was instituted by the Miner's Phthisis Act of 1916 in South Africa. This board should be composed of three physicians, one representing labor, one representing the industrialist, and a third, neutral. The Board should also have a chemist and an engineer, all of whom should have special qualifications in this particular line of work and not be political appointees. This Board could decide whether the industrialist had exercised every precaution possible to protect his men, for with the present arrangement of law suits, whether they be before a county court or a federal court, the jury decides in favor of the sick man. His illness may have antedated his employment by the particular industrial concern, and the jury give a verdict in favor of the plaintiff.

They should, secondly, decide from their examination, the degree of disability and the amount of compensation that should be awarded in case he is found to have respiratory disease, due solely to his employment.

Third, to investigate and decide all claims for the dependents of diseased workmen who have brought suit for compensation, where the workmen had been subjects of silicosis or tuberculosis, due to dusty occupation.

To prevent the employer from being imposed upon, every person seeking employment in these

dusty occupations, should be x-rayed and examined medically before being accepted for work. Second, all employees who are now engaged in these dusty occupations should be x-rayed, and the extent of injury to the lungs noted, and a change of occupation made.

From the foregoing, it can be noted that a workman who has been employed in a dusty trade must prove, first, that the dust to which he had been exposed was capable of causing a bronchitis, tuberculosis, or silicosis; second, that the statistics of the particular industry show that there is a greater probability of respiratory diseases amongst workmen over that of people of the same age, and the housing conditions in the same locality; third, to show that the machines, apparatus or processes that threw off dust, and that the dust was of such a nature and size as to be capable of having caused the respiratory disease in question; fourth, that the machinery, processes or apparatus could have been protected by exhausts, ventilation or other protective mechanisms; fifth, that the employee on account of the peculiar nature of his employment was exposed to the dust from the machinery, process or apparatus, (here, a gravimetric determination of the amount of dust per cubic foot and the dust count made at various times to determine whether it was harmful, is imperative);[42] sixth, that the workman was subjected long enough to the dust arising from the machinery, process or apparatus to produce, cause, aggravate, or increase a respiratory disease already present. Here it is essential to know the size, the amount of dust particles per cubic foot, solubility, and other characteristics of the dust. seventh, it is very important to show that the man was in good health as shown by previous medical examinations by entirely qualified practitioners, including physical examination, x-ray pictures, and laboratory work.

CONCLUSION

1. Pneumonokoniosis, (silicosis, siderosis, etc.) is not a new disease but is being capitalized by certain doctors and lawyers for financial gain.

2. Silicosis is caused by the long continued inhalation of dusts containing silicon dioxide in concentrations of over 10,000,000 particles per cubic foot of air.

3. For their own protection, employers should provide:

a. Regular inspection of the plants to improve working conditions as regard to dust elimination.

b. Examination of men before accepting them for employment.

c. Frequent inspections of workers in order to pick out those who are in the first stages of the disease and,

d. If subsequent examinations show the presence of the disease, give the men other employment or pension them off according to their disability.

4. Doctors should be educated as to what degree of disability calls for compensation.

5. Brains and money should be pooled to provide a central office to give out information to fight the racket for the protection of industry, and to better the working conditions for the preservation of the health of the worker.

6. There should be a proper compensation law. It is easier to try cases of silicosis before an industrial commissioner as he has the opportunity to hear more cases and would understand the testimony better than a jury in a common law suit.

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FRACTURES OF THE TRANSVERSE PROCESSES OF THE LUMBAR VERTEBRAE

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Fractures of the bodies of the lower dorsal and lumbar vertebrae are not uncommon and are usually the result of direct violence. Howard Doub[1] states that 40% of all spine fractures are confined to the lower dorsal and upper lumbar region. Usually these fractures are due to violent compression and fractures of the transverse processes may accompany these crushing injuries of the bodies of the vertebrae or may be independent of such injuries; such fractures of the transverse processes due to direct violence also show injuries to the soft tissues, the skin, subcutaneous tissues and the underlying muscles.

There is a type of injury, however, that involves the transverse processes alone that is not due to direct violence but is due to muscular exertion. Doub (ibid.) has found such fractures of the transverse process where the signs of injury were so slight that fracture was not considered and the common diagnosis of "back strain" was made.

Wilmoth[2] reports a series of seventeen such cases that were the result of forced hyperextension of the spine or sudden, extreme muscular exertion. Such cases are frequently not recognized because the history of so slight a trauma does not seem to justify a Roentgen examination.

One may suspect fractures of the transverse processes or even chip fractures of the bodies of the vetrebrae from a history of sudden, extreme muscular action such as severe hyperextension or twisting in an attempt to save oneself from a fall. Wilmoth (ibid.) says that following such a severe hyperextension or twisting the symptoms are acute pain, definite point of tenderness in the lumbar region, muscle rigidity and limitation of motion. These cases do not respond to ordinary treatment such as heat, massage, diathermy, etc., and it is only when a more thorough examination is made and Roentgenograms taken, that the fracture of the transverse process is discovered.

In fact, Kerby[3] states that fractures of the transverse processes are more often due to indirect violence or extreme muscular action than they are to direct blows or injuries to the spine and limitation of motion and definite point of tenderness should make the physician suspicious and ask for Roentgenograms—both anterioposterior and lateral.

Trostler[4] has described nineteen cases of fracture of the transverse processes in which the symptoms simulated those of kidney stone. All of these cases gave a history of a severe trauma usually by direct violence to the lumbar region three to twenty-five years previously but there were a number of the cases in which the injuries had been recent. In five of these cases the fractured transverse process was removed with complete relief to the patient.

In view of these findings it may be well to pay more attention to the lumbar vertebrae in cases with symptoms referable to the kidney.

Schiessel[5] has reported on twenty-three cases in which the only symptoms were pain and restricted motion with tenderness on pressure in the lumbar region.

Mac Kinnon,[6] reviewing fifty cases of fracture and dislocation of the spine, has found that even slight trauma may cause fracture or dislocation

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and that physical examination is not always certain and in his opinion x-ray examination is always indicated in such cases.

Diemer[7] makes the statement that fractures of transverse processes are usually unilateral and multiple and that the distal fragments without exception are displaced downward due to muscle pull. In his case there was compression of the body of the fourth lumbar vertebra and also fracture of the left transverse process of the fourth lumbar with upward displacement of the distal fragment. However, on more careful examination it was found that the fragment really came from the third lumbar vertebra and was displaced downward. In the examination of such films it is important to remember this and to differentiate, particularly in the upper part of the lumbar spine, such fractures from rudimentary ribs. This is very important.

The Roentgenological diagnosis of injuries to the lumbar spine is not easy by any means. Most authors agree that 20 to 25% of lumbar spines show developmental abnormalties and Cushway[8] in examining 931 apparently normal men, found 510 anomalies in 414 cases. In 84 of these there was an extra rib and in 50 there was sacralization of the transverse processes of the fifth lumbar vertebra and an extra lumbar vertebra was found in 46 cases. Not a single one of these men had lost any time from his work. On the other hand, Duncan,[9] in describing the significance of radiologic findings in low back pain, says "In reviewing these cases I feel more than ever that an attempt to prove from Roentgenograms alone whether disability does or does not exist is an extremely pernicious practice. Not all of these cases with negative x-rays are malingerers."

Because of all these anomalies and variations one must be cautious in his x-ray diagnosis of injuries to the lumbar spine. First there must be a history but not necessarily a history of direct violence, secondly physical signs—the principal signs being (a) point of tenderness, (b) limitation of motion and (c) pain and finally, (d) positive x-ray findings.

I quite agree with Duncan that diagnosis on the basis of x-rays alone is dangerous practice. This is well illustrated by the following case.

Richard G., who was employed as a laborer in a zinc smelter where his duties were to charge the retorts with zinc ore and coal and set them in the furnaces (these retorts weigh in the neighborhood of two hundred pounds) stated that while lifting some heavy material he had a sudden pain in his lower back, which pain persisted for about a month, gradually cleared up, and he went back to work. He states that he had no further pain in his back for about a year when the same thing occurred again as the result of lifting a metal dump car back on to its track and this time the pain was not confined to the lumbar region but radiated down the back of the leg and was accompanied by numbness of the foot and calf extending up as high as the knee. It was later brought out in the hearing before the arbitrator for the Industrial Commission that he had consulted, several months previous to the second attack of pain in the back, a chiropractor who gave him "adjustments" for several months and in discussing his condition with the patient made the suggestion that he "must have had an injury to his back."

X-rays were taken and revealed what was considered to be an old fracture of the transverse process of the fifth lumbar (this man had six fully developed lumbar vertebrae) on the left side and a fracture of the transverse process of the first lumbar vertebra on the right side. He employed an attorney to prosecute his case against his employer, suing for four hundred and sixteen weeks temporary total disability, at $16.00 a week and also $16.00 a week for complete and permanent disability, including a pension for life.

It was subsequently brought out in the hearing that the dump car which was used to carry molten zinc was so heavy that it would have been practically impossible for one man to lift it. One of the members of his working gang stated that the dump car weighed approximately one thousand pounds and that it was difficult for even two men to lift one end back onto the track. It was also brought out at the hearing that no one saw him lift the car or that he had complained of injury on the given date. It seemed evident that the testimony as given was probably inspired by his desire for some easy money at the expense of his employer.

A radiograph, an anterio-posterior of the lumbar spine, reveals six clearly defined lumbar vertebrae. There is an anomaly of the transverse process (or an old fracture) of the fifth lumbar vertebra on the left side. There is certainly no evidence of a recent fracture as a well defined ragged fracture line cannot be made out on the film, nor is there any displacement of the distal fragment downwards. There is, also a definite "fragmentation" of the transverse process of the first lumbar vertebra on the *right* side. This had also been diagnosed as a fracture. I wish to point out, however that the edges of both the distal and proximal fragments are smooth in outline and that the distal fragment is displaced *upward* and for this latter reason I believe it is not a fracture fragment but rather an accessory lumbar rib.

Lateral view of the lumbar spine and sacrum did not reveal any evidences of fracture of the bodies of the vertebrae but clearly show the presence of six lumbar vertebrae.

In this case, involving such a large sum of money, a

mistake in diagnosis would have been extremely expensive.

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THE TREATMENT OF VERTEBRAL FRACTURE WITH SECONDARY PARALYSIS

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Spastic paralysis of the extremities due to a compression myelitis, in which an interval has elapsed between the time of injury and the development of the paralysis, can be cured by hyperextension. To demonstrate this I wish to report three cases, one with a fracture dislocation in the cervical area, and one with a compression fracture of the tenth dorsal vertebra; a third case is briefly cited to demonstrate the importance of correct technique in applying hyperextension to the spine.

The first patient, H. R., a young woman 30 years of age, fell from a first story window on December 25, 1931. She was taken to a hospital where she remained unconscious until the following morning. Her condition was suggestive of skull injury; the x-ray, however, showed no skull fracture. Five days later she was dismissed with a diagnosis of sprained neck.

When first seen on March 9, 1932, the patient gave a history of intense pain in the shoulder, which had persisted from the time of the accident; of tonic contracture and difficulty in using the right arm and hand; of a fixed flexion contraction of the left arm; and uncertainty of gait—all of which symptoms had become progressively worse.

Examination revealed a spastic paralysis of both upper and lower extremities, with increased ankle and knee jerks, and marked paresthesia. The roentgenograms taken on March 10, 1932, showed a complete anterior dislocation of the fifth cervical and a small fragment chipped off the anterior aspect of the sixth cervical vertebra. A diagnosis of a compression myelitis with a fracture dislocation of the fifth cervical area was established. Immediate bed rest with hyperextension was advised. The patient returned to the hospital to which she had previously been taken, for admittance. She was there advised to have an immediate laminectomy; this she refused and she was thereupon dismissed. She then returned home and went to bed; hyperextension was carried out under the supervision of a visiting nurse. A pillow was placed under the back of the neck and the head kept as quiet as possible. The spasticity in the lower extremities gradually decreased. After about three weeks of treatment she again presented herself at the Clinic. The paralysis was much improved although she still complained of some slight pain in the cervical region, referred to the shoulder and arm. A modified Schantz collar was applied (several layers of sheet-wadding drawn snugly about the neck by means of a three inch bandage; then more sheet-wadding and more bandage until a firm elastic support is obtained). The support acts to hold the cervical column in hyperextension, relieves weight-bearing and promotes immobility; it is easily applied. Each day the collar was tightened by the nurse and more bandage applied. Immediate relief from pain was obtained upon application of the collar.

The patient returned for examination on July 30, 1932, at which time the paralysis had completely disappeared. She was able to return to work as a telephone operator after having worn the Schantz bandage for two and a half months. On January 4, 1934, she had several dental extractions done without any deleterious effect. Examination at that time showed no evidence of myelitis; normal reflexes were present. When last seen on April 1, 1935, the roentgenologist reported an ancient anterior subluxation of the fifth cervical vertebra upon the sixth, with apparently a firm collar of bony union. She had been working steadily without difficulty, and was then six months pregnant.

The second case, a woman 65 years of age, gave a history of striking her head against the top of the car during an automobile accident eight years previous to her admission to the hospital. After two years, during which time she paid little attention to the condition of her back, she began to complain of a pain in the back and a tight feeling around the waist. The laboratory findings, including Wassermann test, were negative. A hysterectomy had been performed a year following the accident, that is, five years previous to our first examination; neither the diagnosis nor the pathological findings were definitely ascertained. Following the operation the pain in the back continued and became increasingly severe; for a time she was treated for pleurisy and three years prior to her admission to the hospital she was subjected to a cholecystectomy, without relief of her complaint. The pain in the back continued to increase in severity and finally paralysis developed.

Examination showed a spastic paralysis of both lower extremities; she was unable to use her ankles or bend her knees; she was not able to sit up or rise from the the lying position; abdominal reflex was absent; patellar clonus present. Neurological examination resulted in a diagnosis of compression myelitis at the level of the tenth dorsal vertebra; in addition, the patient had a very definite kyphosis. The pain was so severe that morphine was necessary to control it. The neurologist suggested that a laminectomy be performed but agreed

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to let us try hyperextension first in an effort to relieve her pain.

On account of the intensity of her pain the patient was moved with difficulty. She was taken to the operating-room where a general anesthetic was given and hyperextension applied. A model for a plaster bed was made. On the second day she stated that she had less pain than she had had for four months; on the third day the clonus had quieted and on the fifth day the paralysis began to improve. Improvement was rapid for a period of three weeks; the clonus subsided so that we were able to put on a posterior splint to support the ankle and prevent the foot from dropping. Massage was started and gradually we obtained a definite recovery in the way of active motion. The muscles, however, were very weak. The patient had been in bed before the gall-bladder operation and continuously since that time, and was anxious to get up and about. To facilitate matters a body cast was applied; the anterior part of the cast was used as a bed to retain hyperextension. Two days later a fusion operation was performed and permanent fixation secured. On the ninth day the stitches were removed and the patient was put back on the hyperextension plaster bed. Five weeks after operation she was put into a cast and permitted to return home. She was able to sit up; the time out of bed was gradually increased; the cast was removed and she was put into a corset because of the warm weather. Two and one-half months after the operation she was able to walk with crutches; she returned to her home in Ohio and continued to gain until she was able to walk with a little support, using a cane. However, she developed pneumonia which again delayed her for several months because of marked weakness, but she gradually recovered and got along very well, without pain and was able to do housework for a year and a half, at which time she died of cerebral hemorrhage.

The third case, briefly, was a man 42 years of age, who had sustained a fracture of the first lumbar vertebra as a result of a fall. The compressed vertebra was recognized almost immediately and treatment instituted at once. He was hospitalized for three months; wore a cast for six months, and a Taylor brace for two and a half years. He complained of pain in the back, referred over the abdomen and down the thighs, which in spite of treatment was becoming increasingly severe, and an operation had been advised.

When first seen examination showed a rounded kyphosis and a prominence over the first lumbar vertebra; the muscle had atrophied; motion caused pain and muscle spasm. He was totally disabled and was receiving compensation insurance.

Immediate alleviation of pain was obtained by means of hyperextension; a cast was then applied on the upright frame. When complete hyperextension was obtained a combination Hibbs graft with three large tibial grafts was done to assure retention of the new position.

Convalescence was uneventful and the patient has now been entirely well for two years; does a full day's work lifting ice-cream freezers and cases of beer without difficulty. His compensation ended three months after the operation was performed.

This case is cited principally to add emphasis to the importance of technically executing the principle of hyperextension in fractures of the spine.

Conclusion: These three cases demonstrate the fact that paralysis which has developed following an injury to the spine, even though severe and of long standing, can be cured and the associated pain completely relieved by hyperextension with or without operation. Therefore, I do not hesitate to recommend hyperextension treatment, with or without operation, in all cases of paralysis due to cord lesions, in which an interval has elapsed between the original spinal injury and development of the paralysis.

DISCUSSION

Edward L. Jenkinson (Chicago): The essayists covered the subject so well I do not know what is left for me to say. I might sound a word of warning for the radiologists that it is essential to show these lesions which Dr. Chandler so beautifully described. Having done some of this work with him, I know how difficult it is to bring out some of these lesions. Any examination where you do not do a straight lateral is not complete. Also in a number of cases, a good deal of information can be added if films are taken in the right and left oblique positions.

I hesitate to disagree with my preceptor, Dr. Case. I am usually wrong when I do, but regarding Kümmell's Disease, in a few cases I have had an opportunity to follow, I rather disagree with him in some particulars. One is the case of a doctor who while attending one of the meetings one night started to sit in a chair which had been pushed away. He fell upon his buttocks. We didn't examine him originally, but he was examined and they obtained excellent films of the dorsal spine. We saw them afterward and it was impossible to see any fracture. In the course of events, he kept on having pain although he was told he had no fracture. He kept complaining of pain in the spine. He was examined a month later. At that time, the vertebral body was completely compressed. I am wondering if he did not have a microscopic fracture at the time of injury, and I am wondering if he did not have some disturbance in the anterior spinal artery which probably caused the fragmentation and collapse of the vertebra.

Dr. Chandler: I shall take but a minute or two to discuss certain phases of the extensive presentation which Dr. Case has made in demonstration of injury to the back. The original paper which Dr. Easton was to present was in relation to treatment of injuries to the back. From the x-ray angle, we are usually interested in fractures of the anterior part of the vertebra. We should forget that there is a posterior part.

In going into some of the fractures we see during

the first few days, I am struck with the multiplicity of lesions we see on uncovering the lamina. We are dealing not only with fractures of the body; we are dealing with fractures of the posterior structure as well. The most sensitive structures of the vertebra and of the spine are the synovial tissues lining the lateral joints! These are true joints. The surfaces are covered with hyaline cartilage; the joints lined with synovia, capsular ligaments and reenforcing ligaments behind. They are heir to all the pathological changes of joints in general. Synovitis of traumatic or infectious origin is one of the most common disabilities we encounter in the entire back.

In recent years, a great deal of attention has been given to the pad that separates the two vertebrae. The intervertebral disk is divided into a rigid portion of a fibrous portion and soft yielding portion like the honey-centered golf ball, a beautiful piece of mechanism, a shock absorber.

These injuries may cause extrusion of that semielastic material in any or all directions. It may go into the vertebral body itself, may come out through the ligaments laterally, anteriorly, and in one case I had occasion to see recently, it protruded posteriorly, resulting in a transverse myelitis. There is the possibility of that which probably has not been brought to the attention of all of you, the nucleus pulposus, this little elastic center which occupies the center of the disk.

Reference was made to the developmental anomalies. The spine is loaded with every conceivable anomaly. It is interesting to note that as we come up the mammalian scale to man we find that the pelvis is advancing toward the head. Except for the orang-outang, the attachment of the pelvis in humans is closest to the head of all mammals. It is apparent that nature is experimenting, trying to find the proper level of attachment when we have changed from the horizontal to the vertical position. It is interesting to note that the number of vertebral segments in the cervical spine is constant in almost all mammals, the giraffe to the whale. We find seven vertebral segments. It is rather unusual to find eight in humans or eight in any of the mammals. It is probably an experiment of nature trying to accommodate our pelvis to the upright position that accounts for most of these low back anomalies.

Dr. Case: I have nothing to say except to call your attention to the fact that my friend, Dr. Jenkinson, agreed with me. He admitted there might have been a fracture. I am sure along with these fractures, of which I am not speaking with any personal authority, merely giving the consensus of opinion as from the literature of today, these Kümmell's diseases do have a basis of fracture which may not have been demonstrated. I am not sure I could demonstrate every fracture brought to me today, even with the experience we have attained and with the apparatus we have. These fractures very often involve posterior elements. Quite likely there is a disturbance of circulation and some neurotropic change. As to the emphasis on the condition of the patient, Dr. Jenkinson is perfectly right. We must get accurate technical work in order to demonstrate the spines properly, especially in the lower back regions.

MEDICAL PROBLEMS OF TODAY AND THE FUTURE

OLIN WEST, M.D.
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The topic assigned to me is "Medical Problems of Today and the Future." I shall not undertake to forecast the problems of medicine in the future. My mind is not of the kind that is willing to try to project into the far distant future and to formulate predictions as to what is going to happen. Within the last five years, I have seen things happen which I don't believe anybody in this house thought could happen in America, so I have long since gotten over the habit of attempting to predict the future.

Of course, medicine is confronted with a great many problems. It always has been and always will be confronted with important problems. If it were not, it would mean stagnation. Many of the problems with which we are very much concerned today, I believe, are not in any sense new problems. They are as old as medicine is old. Many of them, in my humble opinion, will be worked out by the processes of evolution. No matter what we do or do not do, some of them are probably of such nature that evolution itself will finally determine their outcome. There are those we have created for ourselves and others, many of which are comparatively new in a certain sense, that have been created for us by groups and agencies entirely outside the medical profession, over which we have no control and over which we probably will not have much control in the future. It may be that all of these problems are in the nature of those which will be solved by evolution, because I suppose it is a part of evolution for man to continue to show certain apish tendencies until the processes of evolution are complete.

To my mind, one of the most important and pressing problems of the medical profession today is that involved in the need for better organization. Of course, it thrills me when I hear my friend, Dr. Parker, tell us that 80 per cent.

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of the eligible physicians in Iowa are members of the Iowa State Medical Society. There ought to be 100 per cent. of the *eligible* members of the profession of Iowa in that society, and there ought not to be one-tenth of one per cent. of those who are not truly eligible for membership, who do not believe in the ideals of medicine and in the ethical rules which the organized medical profession has adopted and must maintain if the professional status of medicine is to be preserved.

The first medical society organized in this country, in so far as I have been able to ascertain, was organized on the initiative of an old physician in the early colonial days in New England. He wrote letters, transmitted by various and sundry processes to all physicians whose names and locations he could find in the section in which he lived, asking them to come together "for the purpose of conversation," pointing out that the need for conversation among physicians was a need of the utmost importance. In my opinion, the need for "conversation" among physicians is just as great today and even far greater than it was in those early days in the history of this country. The problems of those men and for many years after them, were comparatively simple, involving the simplest sort of delivery of such medical service as was possible to deliver under the existing knowledge of the times. Today we have complications created by governments, social complexities, conditions of medical education and licensure, health administration and many others. If I could know what the government is going to do, what our universities are going to do, what industry and commerce are going to do, what the medical profession itself is going to do in the way of perfecting its own organization and in the affairs of medicine in its relations to the public, then I would be willing to hazard a guess as to the nature of our problems of the future.

We need more compact and more efficient organization. I am delighted to bear witness today to the fact that great progress is being made toward the perfection of organization in the medical profession in many places. There is no question but that the Illinois State Medical Society is a far stronger body today than it was twenty years ago, ten years ago, five years ago, or even three years ago. With very few exceptions, the state medical associations all over this country are far stronger than they were five years ago. I think that is true to a less extent of our component county medical societies. Unfortunately we have far more county societies than ought to exist, because there are something like ten times as many counties in the United States as should be permitted to exist. In Illinois, we have 102 counties where twenty-five would be sufficient. In the state from which I came, with a population of approximately 3,100,000, there are 95 counties, one of them with a total population of 2,700 people, and one physician. Whether under some system of insurance or under any other system, medical service in that county will hardly be brought to a high plane. The county ought to be abolished and be made a part of other counties that would be able to provide transportation facilities in that territory which would make it possible for those people to get at least fairly good medical service.

While I believe the need for better organization is very great, I am equally convinced that we face a very dangerous problem in the fact that in a certain sense the medical profession is over organized. If I were to tell you how many medical societies of one kind or another there are in the United States, I know you would be astounded at my statement and I doubt very much that you would believe me. Since I don't want to be disbelieved, I am not going to attempt to tell you. But the simple fact is that we have conferences and institutes and academies and colleges and clubs and associations and societies and congresses until there is no end of them. Don't misunderstand me. I don't for one moment intend to give the impression I don't believe that some of these organizations are not filling a very useful purpose. I do. But I also believe, and I not only believe it, but am absolutely and unreservedly convinced that there is grave danger in over organization. There is danger in that it brings about a dissipation of fealty. There is danger in that it produces duplication of effort. There is danger in that it encourages propaganda of a destructive kind. There is danger in that it brings about a confusion in the public mind and especially in the minds of members of legislative bodies.

It is a very embarrassing thing to go to a member of Congress, as I have done on more than one occasion, or to a member of a state legislature, to try to promote the policies of the Ameri-

can Medical Association as defined by its House of Delegates composed of elected delegates representing the entire medical profession of this country as it is organized, only to be confronted with a statement of an opposite policy that has been adopted by some other organization whose members are first members of our component county societies, our state associations, and the American Medical Association. I know that happens because it has happened. I should not be at all surprised if it has happened in the experiences of my friend, Dr. Neal, who has served this society in a very efficient manner and has, at the same time, served the public.

I had occasion not long ago to try to ascertain just how many meetings of a medical nature are held in a number of population centers in this country. I found that in a city having a population of less than 300,000 there were on an average of 29 medical meetings a week and one meeting of the county medical society a month. I found in a city of a little less than 400,000 population there were 42 medical meetings a week and the county society, if it was lucky, got one meeting a month. I found in some places the staff meetings of hospitals had been substituted for the scientific meetings of the county medical society, and by that procedure many of the members of the county society were cut off from all participation in scientific work in those particular counties. That, in my judgment, is a situation that is dangerous to organized medicine and one that ought to be corrected.

I think this question of organization is one that needs the careful, prayerful consideration of every man who is interested in medicine for its own sake and who wishes to see its real destiny fulfilled. There can be but one basic organization of the practitioners of medicine in any country. In our own country, I have no hesitation in saying, that one basic organization is that composed of the component county medical societies, the constituent state medical associations and the American Medical Association. It is the only organization that is open or that can ever be open to all reputable, duly, legally registered physicians. There must be one organization that is open to all reputable physicians and that organization deserves the active, the persistent and the eternal support of every man who believes in scientific medicine and who is interested in medicine for its own sake and for what it can do for mankind.

There should be one voice to speak in the United States for the organized profession of this country. There should be one voice to speak in the individual state for the organized profession of that state, and there should be one voice to speak in the individual county for the organized profession in that county. That voice at the bottom should speak in keeping with the pronouncements of the delegated body chosen by its own members to represent the organized profession of the nation.

There are other problems which are confronting medicine. I am going to touch on a very few of them and I hope you will not feel I am trying to preach to you, for I am not. I am going to try to tell you some things I know are true because of what comes over my desk one day after another, and because of what laymen say who come to discuss their own problems in their relation to medicine.

A young man walked into my office not long ago. It was apparent to me the moment he walked in the door that he was highly indignant about something. He walked over to my desk and laid down upon it what I found to be a statement which had been sent to him by a physician. This young man said, "I have come here to find out what the American Medical Association is going to do about this." I picked up the statement, looked at it, and found it was a doctor's bill for $259 for an operation for appendicitis and for three calls that had been made before the operation. The young man said, "I make exactly $80 a month. I have a wife and three children and my mother to take care of. I have struggled to keep off 'relief.' I went to this doctor when my child became ill and told him my financial condition, showed him my bank account, told him what I had and asked him to please tell me what he was going to charge me and told him that I couldn't pay at once and would have to take a long time to pay it." The doctor told him not to worry, it would be "all right." Two or three days after he operated, he sent the young man a bill for $259, charging three dollars for each of the calls made before the operation and wrote on the bottom, "This bill is past due. Call and make immediate arrangements for payment."

I hesitate to talk about these things even in a

group like this, but I am convinced after thinking it over for some time, that the day has arrived when we must talk about them. I know from what men in high positions say to me that they feel the actions of men like the one to whom I referred and the men in the profession who are guilty of other reprehensible actions represent the attitude of the entire medical profession. Within a week, I had a gentleman of high rank in public affairs tell me of an instance similar to that which I have just recited to you. He said, in so many words, that that one instance had convinced him the medical profession today is without any humaneness, that its idealism had been lost, that it had no concern other than what it could get out of the public. It gave me pause when an intelligent citizen, whose name is widely known, told me that he considered this one incident that came under his observation as a true reflection of the attitude of the entire medical profession.

Why have I brought this to you? Because I know better than anybody knows that it is a minor element in the medical profession who is guilty of forgetting the ideals of medicine. I know better than anybody knows that it is the minor element in the medical profession who exhibit disregard for the principles of medical ethics. But I know also that the fact these men are permitted to get away with reprehensible acts reflect unduly and disastrously on the entire medical profession. I can present strong evidence to support my convictions. It is my humble opinion that a member of a medical society should not be permitted to engage in reprehensible practices that bring discredit on all physicians and poison the public mind. The organized medical profession should take these things in hand. I don't want to wash dirty linen in public, but I do believe the medical society can, through its duly appointed official body, its board of censors, its committee of public relations, or committee on ethical relations, take the individual man who has reflected unduly on the medical profession in hand and get him to see his duty to the profession and to the public. If they cannot get him to see it, then put him without the pale of organized medicine.

I was very much interested in Dr. Crowell's paper and some of the things he discussed. Of course, everybody now is interested in what is being called state medicine and sickness insurance, and more particularly in compulsory sickness insurance. We have recently had an example of what happens to the medical profession when it attempts to control a movement which, by its very nature, will almost inevitably be controlled politically.

One state medical association within two weeks after the American Medical Association had reaffirmed its opposition to compulsory sickness insurance in any form whatsoever, at a special meeting of the House of Delegates, approved the principle of compulsory state insurance and announced its readiness to cooperate with a committee of the Senate in the preparation of a bill to establish a system of compulsory sickness insurance in its own state. The medical society, through its committee, undertook to include proper safeguards in the proposed law by writing into it some of the ten principles that were pronounced by the American Medical Association and by setting up other safeguards in various places in the bill. Within a short time after the bill was submitted to the legislature and the politicians got hold of it, all semblance of medical control was eliminated.

We must consider the practicalities in these situations. The test of truth is experience. There is only one teacher and his name is Experience. If we don't learn by experience, we will never learn. What happened in the state above referred to is exactly what will happen anywhere where an attempt is made to legislate a system of sickness insurance. What do you know of that is supported by taxation that is not politically dominated? What do you know of that can be ruined more quickly and more completely than scientific medicine by any system that involves political domination? I am in favor of encouraging county medical societies to undertake the promotion of plans that will extend the service of medicine and make it available to everybody in every social status in so far as that can be done, but I plead with you, in case it is your purpose to attemp to promote any such plan as those which have been referred to here this morning, that you will not only keep in mind the idealistic considerations involved but that you also give the most careful thought and consideration to the practical questions involved.

Another of our state associations, acting under the most worthy impulses and with the most

worthy motives, has recently incorporated itself as a separate body for the purpose of perfecting a plan for providing medical service to the low income group. It drew up its own plans. It is my humble opinion that the state organization, by organizing a group entirely independent of the state association, has probably destroyed all possibility for maintaining the control by organized medicine in the plan it proposes to operate. Within a few days after they recorded the charter of their organization in the state capital, a purely commercialistic concern, took this charter, copied it and filed it as its own charter. The commercialistic organization without professional inhibitions will probably get far more patronage than the worthy organization that is supposed to be under the control of the organized profession in the state.

I have exactly the same feeling about the groups whose schemes are being started in various places and referred to in very fine fashion by Dr. Crowell. I doubt that anybody knows what a real dependable, actuarial basis would be for the operation of these schemes. I am not attempting to discourage medical society plans. I am pleading for careful consideration before any of them are put into operation. There is one fundamental fact that must never be lost sight of, and that is, the world over, voluntary insurance has invariably been the forerunner of compulsory sickness insurance. That is why it is necessary that there shall be the most complete and careful consideration of the practicalities in these situations. I am convinced in my own mind, and I am offering my own opinions for whatever you may think they are worth, that in some instances the operation of these so-called group hospital schemes are accomplishing purposes that are not at all desirable. They are teaching the people to believe that the best medical and hospital service can be rendered for a nominal sum and that is not so. It never was so and never will be so. Others, I believe, may be keeping unworthy institutions alive that ought to be permitted to die and that would die if they were not getting support through these artificial plans.

I am informed that in some places where medical service plans have been established two things have developed that are very disconcerting. One is that the demand for medical service by those who have paid the nominal sums that admit them into membership has increased much more rapidly than the membership of the bureaus has increased. That is an important practicality, my friend, that you must keep in mind. It means that people, having paid something, even though it be a nominal sum, will do exactly what they have done the world over—make demands for service that is not needed. The other thing, which I more dislike to mention, is that a certain element of the profession has exhibited a tendency to give more service than is needed, and thereby to increase their ratio of the pot. Those are practicalities that must be kept in mind and must be guarded against. So I hope that care will be taken to see to it that any plan that any county society wants to undertake is put on a sound actuarial basis in the beginning, if that can be done. If you don't do it in the beginning, you will have trouble later and will encourage the development of purely commercialistic schemes that will destroy the very worthy purposes you have in mind.

Even in spite of what I have said, I am strongly convinced there is great need for our medical socities to go forward in the development of plans designed to extend the services of medicine to everybody who is in need of such service. But I also believe, at the same time, that the fundamental values of medicine are really the important consideration in all of these matters, and that whenever we promote any scheme that will in any way tend to undermine or destroy the fundamental values of medicine, both medicine and the public will suffer deplorable injury.

I spent the night one time in the mountains with an old mountaineer who was the only man living there for miles around. He was very hospitable, took me in, took care of my horse, offered me some food I couldn't eat, I am sorry to say, and entertained me with the most delightful conversation after I got him started. Before he started, he found out everything I knew and a lot of things I thought I knew which he knew were not so. He sized me up from the start to finish before he ventured a remark of any sort. I found out early in the conversation that the old man could neither read nor write. As he went along in his observations, I found he never said anything unless he could say something really intelligent. I was much impressed with

the intelligence he exhibited and said, "Mr.——, it seems to me you must have done a good deal of thinking in your life."

He said, "Doc, I have lived here all my life, was borned here. In the season I worked in my crop and in the off season I worked in the timber. Any fool can follow a plow without thinking about it and any fool can cut a cross tie without thinking about it. What else have I had to do but think?"

My friends, from what I hear from some of the professional associates, there are many doctors in the country who have a lot of time to think. My opinion is this is the time when good straight thinking is needed more than ever before in the history of medicine. The result of that thinking should be made available to the organized medical profession, and through the organized medical profession made available to all of medicine and to all the people. But in your thinking, start not with purely economic considerations, not with purely materialistic considerations, but start with the fundamental values of medicine. Some of you have heard me tell the story about a fellow in East Tennessee who got lost in the mountains. He wandered around and finally came to a mountaineer's cabin. An old fellow was sitting in a cane bottom chair on the porch, with an old ten gallon hat pulled over his eyes, taking a nap. The traveler called to him and the old man came down to see what he wanted. He said, "I want to know how I can get to Knoxville from here." The old mountaineer thought a minute and said, "Well you go up this here trail, and at the first gulch you come to at the right you go down the gulch about three miles and turn to the right." He got to thinking about how rough that so-called road was and said, "No, that won't do. Go over here about a mile and one-half and take the first gulch to the left and go about two miles and turn to the left." He recalled that was also rough and again directed the traveler a third way, took that back, and said, "Look here, Mister, if I was you and was going to Knoxville, I wouldn't start from here."

My plea is that in your thinking about all these things you are constantly reading about and talked to about, start from the right place —start with the fundamental values of medicine. Don't ever lose sight of the fact that the work of medicine can be done only by a qualified, humane, idealistic profession. I have put the emphasis on *profession*. Don't overlook many of the influences that are persistently at work today, including some of our so-called philanthropies,—and the perils of philanthropy are very real—whose whole tendency is to create conditions that will pull medicine down from the status of a profession. There is nothing that will retard scientific progress and destroy the possibility of the people receiving good service more completely than demotion of medical practice from a truly professional status.

COMPLICATIONS OF DIABETES MELLITUS

CLARENCE J. McMULLEN, M.D.
CHICAGO

Diabetes mellitus is associated with certain complications so frequently that they must be considered as in some way directly related to the diabetes. These complications are coma, infections, including pulmonary tuberculosis, gangrene, arteriosclerosis and heart disease. Other complications also occur which are not characteristically related to the diabetes. We considered the subject of sufficient interest to warrant a survey of the cause of death in the Cook County Hospital diabetics during the year 1933. In the year 1933 there were 600 cases of diabetes mellitus discharged from the Cook County Hospital. Of this group there were 130 deaths. Of these deaths the greatest number occurred between the ages of 50 and 70. In the various decades the following number of deaths occurred:

1st decade	1
2nd decade	5
3rd decade	4
4th decade	11
5th decade	25
6th decade	31
7th decade	34
8th decade	18
9th decade	1

Thus the greatest number of deaths occurred in the older groups. This fact deserves further consideration. Diabetes mellitus may occur at any age, but 60% of all cases begin after 40; 51 is the most frequent age of onset. Thus, the majority of diabetics are from 40 to 80 years of age. Statistics definitely show that there are many more people living to this age now than

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formerly. In 1850 only 8.9% of the population were over the age of 50, while in 1930, 17% of the population were over 50. This is probably due to many factors, including control of infectious diseases and better standards of living. From a diabetic standpoint, there are also more diabetics who, due to proper control of their diabetes and proper insulin therapy, are living longer and reaching the older age group. Therefore, there are more old people, more old diabetics, and we would naturally expect to find the deaths occurring in the older group.

In considering the cause of death of these diabetics, and realizing that the majority of them die after the age of 40, we expect to find complications of the type also found in the non-diabetic population of this age. Such complications are arteriosclerosis, hypertension, nephritis and heart disease. Prior to 1922, the date of discovery of insulin, the younger diabetics all died within a few years. Diabetes in children was quickly fatal. Insulin has allowed these younger diabetics to live longer and to enter the older age groups. There are very few diabetics dying in childhood, due to more widespread knowledge of the use of insulin in the management of the diabetic.

Joslin states that between the years 1898 and 1914, the average age of death of diabetics was 44. From 1914 to 1922 the average age of death was 46. After 1922 to the present time, the average age of death of diabetics was 59. Thus, it is further apparent that there are more diabetics to be cared for, also that there are more diabetics living to an older age, and thus more diabetics with problems in management, especially as regards the complications. It is estimated that there are 400,000 diabetics in the United States, and there are probably 10,000 diabetics in Chicago. Thus, it is a fairly common disorder. One out of every 337 persons is a diabetic.

To further understand the diabetic and the dangers which surround him, a study was made of the causes of death in a group of 130 diabetic deaths occurring in the Cook County Hospital in 1933. This survey showed that the principal causes of death were:

Gangrene
Coma
Pulmonary tuberculosis
Other infections, and
Cerebral accidents.

Thirty-six deaths were due to coma. It seems that with modern methods of treatment, coma should be avoidable, and many of the coma deaths were undoubtedly due to lack of knowledge regarding diabetic care and improper management before entering the hospital. However, one-half of the coma cases were associated with complications which undoubtedly were factors in precipitating the coma and the death. These complications were peritonsillar abscess, acute pancreatitis, carbuncle, otitis media, pneumonia, uremia, infected jaw, pyelitis, bronchopneumonia and abscess of the back. Comas associated with acute infections are very grave. In fact, so much so that any coma entering the hospital with fever should be carefully examined for an associated infection, because the prognosis is much more grave than in coma without fever. Three-fourths of the fatal comas entering the Cook County Hospital died within 24 hours. Thus of the 36 fatal cases, 27 lived one day; five lived two days; three lived three days, and one over three days. Of course, these are the fatal cases. I think this indicates the gravity of deep diabetic coma. The records show that all these coma cases received prompt and accurate care with adequate doses of insulin. Of course, many of the cases came in in extremely deep coma, and there was little hope of recovery. However, the very fact that the majority died within 24 hours shows the seriousness of deep coma, and when we realize, once acidosis develops, that the patient may be in deep coma within 24 hours, we must appreciate the extreme emergency which diabetic acidosis presents. Diabetic acidosis requires prompt and accurate management, and it is just as important for the attending physician and the interne to stay up all night in a diabetic acidosis case as it is in a surgical emergency case. These facts suggest that if your patient is in deep coma, he is apt to die within 24 hours. If he lives beyond 24 hours, he will probably recover. If he lives 48 to 72 hours after entrance into coma, he will most surely recover. One of the frequent sources of infection overlooked in diabetic coma is the urinary tract. Acute cystitis or pyelitis may be the associated factor which will prevent recovery. The urine should be carefully studied for evidence of infection. In some of these infectious cases, the acidosis may apparently disappear as indicated by the urine and blood reports, but the coma per-

sists, the fever persists, the patient remains weak and semi-stuporous with infection apparently the predominating factor. Infections of any type such as hand and foot infection and urinary infections occurring in the diabetic must be promptly treated in the regular manner in the hopes of preventing an associated acidosis and coma, which is apt to terminate fatally. One day on which this survey was made, there were present in the Cook County Hospital the following diabetic complications:

3 Ischiorectal abscesses
1 Carbuncle
1 Appendiceal abscess
1 Cellulitis of the arm
5 Pulmonary tuberculosis
1 Infected foot.

and several cases of gangrene. Forty-two deaths were due to diabetic gangrene. In fact, the majority of deaths in the sixth, seventh and eighth decades were due to gangrene. Diabetic gangrene has a much higher death rate than the ordinary arteriosclerotic gangrene. They are much poorer surgical risks. Without operation and treated conservatively in the hope that the gangrenous part may be amputated spontaneously or easily relieved by minor surgical procedures, many of these patients go along for several weeks apparently in good condition, finally develop a low grade temperature, become weak and die rather suddenly, usually due to an associated bronchopneumonia. On the other hand, when operated upon many of them die postoperatively in spite of careful treatment. Thus, it is our opinion that diabetic gangrene is a serious complication, whether treated conservatively or surgically, and our hope is that we may be able to prevent diabetic gangrene rather than to have to treat it. The diabetic should appreciate the great danger of gangrene, and should be properly educated regarding the care of his feet so as to avoid trauma, which is frequently the original cause of the gangrene. Diabetic gangrene is much more common in the group of patients of the type seen in the Cook County Hospital than in private patients under medical supervision who have proper diabetic care, and are educated regarding foot hygiene and the danger of trauma to the feet. In this series there were not many deaths due to foot infections without gangrene, showing the importance of differentiating the infected foot from the gangrenous foot. Many infected bunions, infected calluses and cases of osteomyelitis involving the toes, recover with proper surgical and diabetic treatment. It is essential for us to differentiate infection from gangrene in the diabetic foot. The foot with infection and no gangrene rarely causes death. The foot with infection at the base of one toe producing an inflammatory edema and gangrene of one toe, with the remainder of the foot and leg showing no circulatory deficiency, should not cause death. And so in any sore foot in a diabetic we must determine certain things:

First: The condition of the circulation as determined by the appearance of the leg and foot, noting the dorsalis pedis artery, the presence or absence of atrophy, and the temperature of the foot, and the presence or absence of pain. The painful, atrophic foot usually has deficient circulation.

Second: The type of infection. The presence of localized suppuration without gangrene is a good sign. A bad foot becomes gangrenous without localized suppuration.

Third: Osteomyelitis, its presence or absence. It is not uncommon for osteomyelitis to develop in the head of the first metatarsal bone, commonly with a discharging sinus and an associated gangrene of the big toe. These cases do well by amputation of the big toe and part of the metatarsal bone, provided the foot has adequate circulation.

Fourth: Deficient circulation and superimposed spreading infections are bad cases.

In observing the local lesion it is necessary to note whether it is demarcated, whether there is extensive spread along the lymphatics and veins, whether there is tenderness below the heads of the metatarsal bones on the plantar surface, which usually means spreading infection under the deep fascia. These cases present serious obstacles, usually require prompt amputation of the extremity. Close cooperation between the internist and the surgeon are necessary in making the decision as to the type of surgery and the appropriate time for operation.

Pulmonary tuberculosis is a serious complication of diabetes. In the majority of cases, the tuberculosis is not recognized until the disease is well advanced. The early symptoms of malaise

and weakness are overlooked, the diabetic blaming these symptoms to his diabetes, and by the time he is aware of the added complication, the disease is far advanced. Every diabetic should have routine x-ray of chest at least every six months in the hopes of avoiding this fatal error.

In a series of cases of diabetic tuberculosis observed at the Municipal Tuberculosis Sanitarium in Chicago, it was found that the majority of cases of diabetic tuberculosis entered the hospital either moderately advanced or far advanced, and that at the end of five years 25% were living. In other words, at the end of five years, three out of every four diabetic tuberculosis patients had died. This probably would not be true if the tuberculosis had been recognized in the incipient stage, at which time proper tuberculosis therapy and proper diabetic management might have prevented further progress, and the future undoubtedly holds much hope for this group of patients based on more accurate observation and earlier diagnosis. The type of tuberculosis seen in the diabetic is similar to that found in the non-diabetic, the typical adult type with varying degrees of fibrosis and cavitation, there being a marked tendency to formation of cavities and to progression with enlargement of these cavities. Diabetic patients should be spared the danger of contact with tubercular patients at all times. Most observers agree that the incidence of pulmonary tuberculosis is slightly greater in the diabetic than in the non-diabetic population. The tuberculosis is managed in the usual way, with proper rest, proper food and the usual operative procedures, as phrenectomy, pneumothorax and thoracoplasty. The diet should be a palatable diet with adequate calories. In our experience we have found the high carbohydrate diet of the type:

C 200, P 70 to 80, Fat 100

a satisfactory type with the C twice the F. There are many difficulties in managing the tubercular diabetic due to fluctuations in the activity of the tubercular infection, which one learns only by contact with these patients. The loss of appetite, the attacks of diarrhea which occur with pulmonary tuberculosis require changes in the diet from general trays to soft and liquid trays with the fluctuation in the appetite, and also necessitates variations in the dose of insulin with the variations of the appetite. The night dose of insulin is found necessary in many cases to prevent marked hyperglycemia in the morning.

DIABETIC CHILDREN

A group of 20 diabetic children were studied regarding the presence of tuberculosis. The diabetic child is said to be more susceptible to tuberculosis than the non-diabetic child.

Priscilla White in Boston states that in her series 41% diabetic children gave positive tuberculin tests and 65% gave x-ray evidence of calcification of the tracheobronchial lymph glands. However, in our group of 20 cases, which is a small group, there were only five cases giving a positive Mantoux test and one other case showing definite calcification of the lymph glands of the chest, with a negative tuberculin test, making a total of six cases or 30% with findings indicating a primary tubercular infection. If we compare the incidence of the positive tuberculin test in non-diabetic children, we find that the majority of surveys have shown that normal school children have an incidence of about 25% positive Mantoux tests, and so the diabetic child apparently shows a somewhat greater incidence of primary tuberculosis infection. We believe that the diabetic child should be protected from exposure to tuberculosis.

Of 23 diabetic autopsies by Dr. Jaffe and his assistants in the Cook County Hospital in 1933, a review of their autopsy reports revealed vascular sclerosis in practically all the cases over 50 years of age, as shown by atheroma of the aorta, cerebral sclerosis and coronary sclerosis. Definite coronary sclerosis was present in nine of the 23 cases. Thus when we observe our 50 year old diabetic clinically we must realize that he has vascular sclerosis and is liable to the associated complications as cerebral accidents, angina pectoris and coronary thrombosis. Active pulmonary tuberculosis was present in only two of the 23 cases. This is of interest when we compare it with the reports of the older writers, who in the nineteenth century reported 40 and 50% of the diabetic deaths as due to pulmonary tuberculosis.

Pyelonephritis was present in four of the 23 cases. Gangrene occurred in seven cases. Thus in this series of autopsied cases the principal pathological changes were vascular sclerosis, coronary thrombosis, pulmonary tuberculosis, pyelonephritis and gangrene of the extremities.

Conclusions.—The principal causes of death in

the diabetic in a series of 130 fatal cases have been enumerated. By acquainting ourselves with the complications of diabetes mellitus, and their precipitating factors, we will be able to prolong the life of the diabetic.

DISCUSSION

DR. H. E. ROSS, Danville: Dr. McMullen has very forcefully called attention to our obligations to the diabetic in causing him to enjoy a fuller and more productive life by recognition of the seriousness of diabetic complications and a necessity for further education and cooperation with the medical profession, thus obtaining what that profession can offer him.

Since one out of every 357 persons is diabetic and since the advent of insulin has added nineteen years to the life of the diabetic, how much more could be added to his life were he more professionally conscious. Have we not erred in our relationship to the patient in our education by causing him to be a self prognosticator of his condition and causing him to be professionally responsible to himself in his laboratory interpretation of the urinalysis? Do we consistently cause ourselves to be responsible for microscopic examination of the urine in the early detection of cystitis and pyelitis? Do we carefully examine the lungs of these patients and insist upon corroborative x-ray for the early recognition and treatment of tubercular complications? Have we caused the diabetic to be conscious of the seriousness of a secondary infection? Have we slackened in the use of our diagnostic acuity in interpreting the arteriosclerotic tendencies of the diabetic under our care? May we have a more serious evaluation of the histamine reaction on the diabetic to prognosticate those predisposed to gangrene? Do we approach the diabetic as a handicapped constitution, maintaining his general health rather than focus our attention upon his state of glycosuria, for the maintenance of longevity? Are we causing the diabetic to have an even chance with the non-diabetic in meeting the medical and surgical insults his body might fall heir to? The difference between the diabetic and the non-diabetic patient from a prognostic viewpoint lies in the fact that the diabetic patient has less resistance to infection and infection makes the patient prone to early acidosis, thus constant professional observation and maintenance of high immunity by the use of all measures at our disposal for the improvement of their general vital resistance. Let us study more carefully our endocrine disorders and their effect upon the pancreatic gland with attention to the prenatal care of the endocrine deficient mother to lessen the birth of children who will be predisposed to diabetes because of their constitutional endocrine inadequacy. And may we also save the pancreas by the early surgical approach of the infected gallbladder to lessen the degree of pancreatic complications.

Dr. McMullen has curtly reminded us of our responsibility in the care of the complications of diabetes and our responsibility in using all the professional armamentarium at our disposal to prevent or retard the development of complications in these handicapped beings. May we not complicate the diabetic by placing unwarranted responsibility upon him in his self treatment. We must assume our full responsibility in our education to the patient by demanding a more frequent medical counsel and closer cooperation with the profession whereby he may receive the benefit from the advance of medical science in recent years.

TEAM WORK IN HEAD CANCER

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Nowhere in medicine is team work more essential than in treating cancer. To defeat this deadly enemy requires the best staff work, the keenest intelligence unit and the most decisive and powerful barrage of all the weapons at our command. No single treatment is universally applicable to cancer about the head. No one physician is likely to possess all of the knowledge, training and skill to diagnose such a growth, to determine its special vulnerability, to make the best exposure or approach, and to apply best the chosen agents.

Unquestionably the greatest recent advances in the treatment of cancer have been made in the use of x-rays and radium. It does not yet appear, however, that all cases in our field are best treated by irradiation. Some surely need electrosurgery or the scalpel, either alone or as a complement to the rays, and it requires a team of radiotherapist, pathologist and otolaryngologist to determine what is needed to give the patient his greatest chance of cure.

Any one who takes the responsibility of directing the treatment of a case of cancer should know the natural course of such a tumor and its probable response to irradiation or the possibility of its destruction by electrocoagulation as determined by histology, location, appearance, clinical course and the condition of its host. This discussion will attempt to define the criteria for the selection of the proper treatment in general, and in particular regions of our field.

Both electrosurgery and irradiation have certain advantages and disadvantages.

Coagulation is not a dangerous or difficult method. It is relatively rapid and free from hemorrhage, shock and postoperative pain, seals off blood and lymph spaces against infection and

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inoculation metastases and gives smooth healing. Tissue, malignant or benign, exposed to electrocoagulation is finally and irrevocably destroyed. Its failures are due to the fact that it may not reach all cancer cells. It is unavoidably destructive of some sound tissue and may leave mutilating defects. It entails the risk of any operation associated with anesthesia, aspiration or hemorrhage, although these are much less than in scalpel surgery.

Irradiation seems to the patients innocuous and with it they will be less likely to avoid or delay too long such treatment. Its cosmetic results are usually excellent. It captures within its sphere of action outlying strands or early extensions that electrosurgery would miss. Its proper use is attended with little risk.

Improperly used irradication may have serious effects. If not well screened there may be distressingly painful periostitis and perichondritis, or grave destruction. Inadequately used it may seal cells in scar tissue, hiding them until too late for surgery. It may so damage the tumor bed that later full irradiation will have small effect. If the first treatment does not cure, further irradiation is not likely to succeed or may lead to terrific destruction and surgery may then be impossible.

The differential between tumor cell and normal tissue destruction may not be great and to be efficient the dose of rays must be just short of permanent damage to mucosa or skin but with probably marked temporary changes.

In spite of tremendous work the effect of irradiation is not yet well understood, and Stewart required eighty-five pages to sketch the present ideas of radiosensitivity. Regaud believes the action is mainly on a susceptible nucleus. Ewing thinks both nucleus and cytoplasm are equally affected and the tissue bed reaction is perhaps the most important. Most authors hold that reactive fibrosis or other change in surrounding tissues have much to do with tumor destruction. Sittenfield and others consider there are two actions, first early cancer cell injury and later destruction due to tissue reaction. Joll is among those who believe that the reticulo-endothelial system and the macrophages have much to do with a favorable response to gamma rays. General antibody formation is considered a factor by some authors.

It is certain that for proper result of irradiation the local area must be well nourished with a good blood supply, free from great infection and without much involvement of bone or cartilage. The host must not be too cachectic, anemic or debilitated.

The probable response to irradiation of a tumor may be predicted as already stated to a considerable extent by a study of its microscopic appearance, clinical course and its duration and extent.

Though only one factor in the selection of proper treatment, the histological appearance is quite important. Certain types of tumor are vey sensitive to irradiation, notably transitional cell carcinoma, and lymphoepithelioma. Basal cell carcinomas are sensitive as are lymphosarcomas and round and reticulum-celled sarcomas. Adenocarcinomas and fibrosarcomas are relatively resistant.

Grading of epidermoid carcinomas on the basis of relative maturity of cell types, abundance of stroma, mitoses and other factors is valuable and in Quick's experience the prediction from this of the expected action of irradiation has been correct within ten per cent. error.

Immaturity of cells, relative malignancy and radiosensitivity do not exactly parallel each other but the degree of anaplasia is a rough indication of both malignancy and radiosensitivity.

There are many possible errors in attempts at grading. Tumors which look alike under the microscope may have very different courses. Biopsy specimens from different parts of the same tumor may look quite different and external factors as time of growth, blood supply, infection, compression, irritation and host reaction may greatly modify the histologic picture. Melnick has pointed out that different authorities use quite different criteria, considering from three to twenty points, and emphasis is placed in varying weights on cell type, which may be almost impossible to determine, mitoses, amount of stroma, round cell infiltration and many other factors.

Altogether, however, histology seems to point quite definitely to the proper treatment. Following the lead of Dr. R. Jaffé at Cook County Hospital my experience has been quite definite that very immature cell forms, undifferentiated, with little stroma, of Broder's Grade IV and III yield well to irradiation. Types with well ma-

tured cell forms, abundant stroma, with hornification or other indication of specialization do well with electrosurgery and may not be easily destroyed by x-ray or radium. Basal cell carcinoma gives a high percentage of cures with either.

The ancestral cells of a cancer seem to determine to great degree the susceptibility to irradiation and the location because of this as well as other factors is very important. The more radiosensitive tumors arise from the tonsillar region, the pharynx and nasopharynx and the posterior third of the tongue. More resistant forms which do well with electrosurgery arise from the skin of the face, ear, nose and lips, the palate, alveolar ridge, cheek, epiglottis and anterior third of the tongue.

The gross appearance of a tumor gives important information as to its probable response. If it is infiltrating or fissured, with indefinable or poor margins, results with electrosurgery will be doubtful. If it involves an unfavorable location as the base of the tongue or lymphoid tissue of the pharynx irradiation will give much the best chance. Likewise if it seems to have grown rapidly or if there is much fixation and induration it is probably not for electrosurgery. If the tumor has a well marked or rolled border or is not fixed or is papillary or even fungating it is likely to be amenable to diathermy. If regional glands appear early or are disproportionate to the original growth the tumor is likely to be of a radiosensitive type and also beyond surgery.

To sum up our criteria for treatment we may say that if a tumor is of a relatively mature type, located in resistive tissue, of slow progress, well defined and of limited growth the major reliance may be upon surgery, especially electrosurgery. If the opposite is true we should yield it willingly to irradiation and leave our energies for more likely material to the great improvement of our morale and our statistics.

Men trained with the different agents will find that not only does their consultation with each other help define the more judicious use for each alone, but they will discover that in an increasing number of cases advantage comes from a combination of surgery and irradiation.

Preoperative x-ray or radium may be valuable as a therapeutic test of radiosensitivity. It may markedly lessen the danger of metastases in cases to be done surgically, but if done should be done thoroughly, and followed by surgery soon enough to prevent later necrosis. Preoperative irradiation may reduce bulk or vascularity and make surgery much easier as in the case of a hemangioma or chondrosarcoma, and if it fails to completely eradicate the tumor electrocoagulation can then finish the job.

Regional gland involvement is a hard problem. I have seen few good results from removal of more than discrete glands, and believe that the extensive dissection may actually remove an important barrier. Radiation of the gland area, to be done intensively or not at all, and perhaps better only if glands appear to enlarge, or interstitial implantation of radon or radium needles after reflecting the skin have seemed to give better results with much less effort. Metastases are frequently radioresistant and results with them are discouraging.

General measures may be quite important and include correction of anemia and poor nutrition with high vitamin diet. Good mouth hygiene is vital in intraoral or throat cancers. We have a young man who had seven skin cancers, one 9 cm. wide, including squamous cell, basal cell, and cylindroma which were running wild, controlled by diathermy with high vitamin A and fat diet.

Treatment of cancers of the various locations may be briefly discussed. Basal cell carcinomas of the skin yield well to irradiation or coagulation with nearly all of them cured if seen early. Radium scars less and is better therefore, especially around the eyes, but may not suffice if cartilage is involved. In squamous cell carcinomas I think coagulation is more certain but contact radium or x-ray should cure over 75% if they are of less than 1.5 cm. diameter. Combined treatment is excellent and Pfahler believes that 98% of cancer of the lip if less than 1.5 cm. wide treated by electrosurgery followed by intensive irradiation will be cured.

In the antrum, though many of the carcinomas are of immature cell type, they give late metastases and are well treated by coagulation. They must be well exposed and radically destroyed. Combined radiation is valuable but painful periostitis will follow unless it is well screened.

Carcinoma of the tongue involving the anterior third, especially if it is papillary or fungating, yields well to coagulation with or without radiation. If it involves the posterior third or base particularly if infiltrating or fissured it should

be given to radiation though even its results here are likely to be disappointing. Electrosurgical removal of the whole tongue is not difficult nor very incapacitating and may well be done in the occasional extensive case without gland involvement.

Carcinoma of the alveolar ridge is, I believe, preferably treated by coagulation especially if bone or periosteum is invaded. On the buccal surface either diathermy or radium will give good results.

One five year cure is all I can show for a good many painful efforts to treat carcinoma of the tonsil by diathermy. From the Memorial hospital are reported 38% five year successes and Coutard had 28% by irradiation here and these cases should surely be dealt with by radium or x-ray.

These agents also are much preferable for carcinomas of the nasopharynx, pharynx and hypopharynx. Isolated involvement of the epiglottis and occasionally of the palate may be removed by electrosurgery. Most of the formidable external surgical approaches for pharyngeal cancer do not seem to be justified. Even if the cancer is of the rare mature cell type suspension will usually give adequate exposure for successful coagulation. Exposure from outside of a piriform sinus carcinoma for radium implantation may be valuable.

Cancer of the larynx is an important case for discussion. Since it has been shown that cartilage may withstand considerable doses of well screened irradiation if given fractionally some men have developed great enthusiasm for such treatment for the larynx. A curtailed discussion of the subject before this section last year perhaps inadvertently left the impression that this was unquestionably the treatment of choice. Statistics may not reflect rapid improvement in technique but they are important. The best figures for irradiation are those of Coutard showing about 26% of five year cures, although of his seventeen cases of 1926, 53% were alive in 1931. On the other hand Jackson reports 82% and Gluck Sorenson 88% of five year cures by laryngofissure in cases suitable for that operation. As St. Clair Thomson has emphasized this operation leaves a nearly normal individual with natural airway and a serviceable voice. It hardly seems reasonable to desert such a satisfactory procedure for a much more problematical one in these early cases.

Laryngectomy, also with its 76% cures shown by Mackenty, seems also more desirable though a perfected technique of irradiation may yet prove the method of choice. Irradiation postoperatively may increase the cures and should be tried on extrinsic cases although cartilage involvement and local metastases lessen its chances as it does those of surgery.

Coagulation of doubtful borders adds to the chances of success with laryngofissure and in cases which have overflowed the larynx may, when used through a thyrotomy, give as good results as the more formidable laryngectomy. Especially if followed by irradiation after the method of Hautant and Coutard it may be quite valuable in advanced cases.

The question of whether to use x-ray or radium can perhaps best be settled by those specializing in irradiation. Hard rays which reach the cancer cells without destruction of essential normal tissue are the effective agent and can apparently be secured with either by proper filtration. Berven thinks the radium bomb with two to four grams of radium much better but Regaud of the Curie Institute considers each about equally effective. X-ray seems cheaper. Radium is necessary for local or interstitial use.

The untrained or occasional user of irradiation is not likely to do his patient much good. Many cases so treated come to us at the Cook County Hospital too late for successful surgery, radioresistant from insufficient treatment and not infrequently suffering great pain. Either radium or x-ray should be used only by or under the direction of men well trained in their use and in quite sufficient amounts. It does not seem good practice to use x-ray of less than 200 kilovolts, constant potential, in fractional doses, well screened, up to the point of maximal skin tolerance. There is surely no place for the careless, the casual, the inadequate use of radium or x-ray.

The considerations enumerated, I think, show there is required for successful cancer treatment a degree of highly specialized knowledge and experience especially in pathology, in radiology and in clinical laryngology best fulfilled by a team. Especially can such a team avoid a one-sided approach and preserve the judicial attitude that should best lift the curse of cancer.

DISCUSSION

Dr. A. James Larkin, Chicago: I plead, with Dr. Galloway, for team work in the treatment of cancer of the head and neck. The diagnosis of cancer about the head is chiefly the function of the specialist in the given field. Biopsy in modern practice is necessary, not only for diagnosis and therapy but for prognosis. Here the pathologist performs an invaluable service. Now the problem of therapy is to be faced. The attending specialist must serve as the chief of the team if the best results are to be obtained. The radiologist as part of the therapeutic team should be in attendance so that he may examine the lesion, know the character of the tumor, its clinical features, the stage of the disease and the histologic findings as given by the pathologist. The attending specialist and the radiologist in conference, with the patient at hand, review the proposed treatment weighing and considering surgical removal, electrosurgery, or irradiation by local, interstitial or external application of radium, or the use of x-ray in its modern form. In some instances the combination of any two or all three of these accepted methods of dealing with cancer will serve best. If such team consultation is held before treatment is begun, the results will surely justify the means. Too often in the past the surgeon or the radiologist has sought consultation only when he has reached an impasse. Then too often the consultation yields but little in the way of benefit to the patient.

The radiologist who is plunged into the various specialties where men are experts in diagnosis and therapy can scarcely be expected to be sufficiently well trained in methods of examination, technic of manipulation, principles of postoperative care and general medical management, to carry on alone in the proper treatment of such carcinomas as those of the nasopharynx, larynx, metastatic masses in the neck, etc. Therefore, the radiologist, to be of value, must be prepared to supply technics which are safe, efficient and reliable. He must be able to prescribe and make radium applications, the specialist providing the exposure or approach. He must be able to predict reactions, warn of complications, prognosticate as to final results, etc. In short, the radiologist must furnish valuable, reliable, and sound radiation information to merit a place on a cancer team in the field of head and neck therapy.

From the standpoint of the radiologist I congratulate Dr. Galloway on an admirable and fair presentation of the subject.

Dr. James T. Case, Chicago: I want to reiterate what Dr. Larkin has just said—I think Dr. Galloway's paper is the fairest, most comprehensive presentation of the present status of irradiation therapy in cancer of the face and neck of any I have read or heard. I say that not only from hearing it, but Dr. Galloway was good enough to send me a copy. One minor point of terminology I might mention: instead of the expression "hard gamma rays" we should say "hard rays" or "penetrating rays." I am sure he meant that. It is a good thing to define the wave length of the rays employed, and then we know the exact meaning of each other's.

With reference to skin lesions, some of the essayist's rather casual statements might be emphasized. In epithelial malignancy of the skin we must use an epidermicidal dose if we expect to kill a tumor. In the skin lesions it is best to make use of a primarily destructive dose of x-ray or radium instead of periodic divided doses over a long period with intervals of freedom from treatment, because radio-resistance develops rapidly. This is true also of lesions within the mouth. The dose must be epidermicidal; therefore mucositis must be produced and if the radiation has not been given to the extent of producing a definite epidermitis of the mucous membrane, one has not given a large enough dose. That cannot be accomplished without hurting the patient; he will have a period of difficulty in swallowing even water. I go into all of these things with the patient and tell him that the first two days or so he may feel better, then he may feel that he has mumps because of the primary reactive swelling of glands, in seven or eight days his mouth will be sore and then the outer layers of the skin and mucous membranes will be denuded. Patients go through treatment better because they know what will happen, and as you have prophesied what will happen and it has happened, they feel a confidence which aids materially.

The sensitivity of tumors and the basis upon which treatment should be outlined have been given. Team work is necessary. The aftercare of the patient, the nourishment of the patient, is important. I find that if carefully shielded smaller areas of treatment are used, accurately laid out so that radiation will get to the part to be treated and save as much as possible of the other tissues from unnecessary irritation, there will be less unfavorable influence on nourishment and less cachexia. Of course larger areas are sometimes necessary on account of the more extensive involvement of the glands. When the mouth gets so sore that liquid foods are necessary, frequent cleansing should be practiced with sodium perborate solution; the cleaner it is kept the more comfortable the patient will be. The skin can be treated with mineral oil, and later on when it is moist and ulcerative, thin layers of gauze may be used, saturated with boric acid. I also use Dodd's lotion. Dr. Delph and I have worked on some of these cases together, and he thinks that if patients take liquid into the mouth as quadrupeds do, lying face down, and sucking the food, to avoid the effort usually made, it is more comfortable.

Dr. Galloway mentioned 200,000 constant current which means 300,000 volts of pulsating current as we ordinarily speak of the x-ray. There are very few constant current equipments in this area. With reference to the choice between x-ray and radium, there is no choice; they should be used together. X-ray therapy with 200,000 or 300,000 volts is more flexible than radium packs or the high 700,000 or 800,000 volts equipment. The latter are rather inflexible and hard to adjust. Local radium applications are infinitely more flexible than either of the others, but have the serious disadvantage of lack of focus-skin distance, a vital

factor in producing homogeneous radiation in the deeper tissues around the malignant disease.

Dr. Roland D. Russell, Chicago: I cannot add anything to this very excellent paper of Dr. Galloway but I would like to stress a point in the treatment of laryngeal carcinoma, regardless of its microscopic characteristics. The lesions of the cord do not respond to radiation. I have seen many radiated with very poor results. In the same type of lesion, squamous cell, of the epiglottis and pharynx, I have seen them melt away as if by magic. How long the result will remain I do not know.

Dr. Francis Lederer, Chicago: Whenever a paper of this character is presented, it answers more or less as the confessional of the man who has been through the gamut of all the different modalities of treatment, and I think the experience of all of us is that we have come to the same conclusion as Dr. Galloway has—that is, that we have not as yet arrived. The radiologists talk very glibly regarding the problem, and yet a statement such as Dr. Russell makes, coming from his clinic where there is a tremendous amount of malignancy treated with radium, is comparable to the experience of a great many laryngologists. The radiologists have come to the point where they are going to refuse to treat a lesion of the arytenoid or epiglottis, or the lesions we call inoperable, because of the experience they are having. They feel that the involvement is too great to even consider such cases for irradiation. Recent experiences with radium, giving patients 450,000 mgm hours of radium, and the Coutard technic of six to eight thousand Roentgen units, does not impress one with the fact that we have anything permanent in x-ray or radium at present. The remarkable results of Coutard do not seem to be those of men in this country at present, so far as I know. Despite the tremendous dosage, both local destruction and recurrences are usually the case. I do not think one can bank on the value of microscopic findings so far as the final cure that is to be expected, regarding radio-sensitivity or radio-resistance. I am coming more to the conclusion of the foreign school, that more depends upon the site of the tumor or what it is doing to the host than upon the cellular character of the tumor. They may melt away, as Dr. Russell says, but they come back stronger than before. It is quite remarkable to hear of these cases of cures, but I personally do not see them. I have come to the definite conclusion that if I cannot reach the lesion by radical surgery it will not respond to radium. This is not a final statement by any means because we are still working. Dr. Larkin and other men in his field know that I have been cooperative in these cases. I think many men will agree with me that we have not arrived at the final knowledge of irradiation and that we are going to be able to cope with the problem when we know more about the properties of these agents and their dosimetry.

Dr. M. H. Cottle, Chicago: I would like to express my appreciation for the presentation by Dr. Galloway this morning of the tremendous amount of work that has been put forth by him and his associates during the last ten years, of which I have been an occasional observer. I think he was one of the first in the middle west to understand the possibilities of diathermy. I feel that he brings to us the last word, and we can accept his statements as a milestone in our progress, and certainly with thanks.

Dr. T. C. Galloway, Evanston: When I had a chance to look at cases with Dr. Larkin and Dr. Case and other radiotherapists and discuss with them each particular case, it opened my eyes to what irradiation could do. One must be openminded, one must know what can be done, and one must have the chance to consult with the pathologist and with the radiologist and must individualize the cases. I think in twelve years there is at least a 50% improvement in the prognosis of these cases, and I am far from being as pessimistic as Dr. Lederer is. He and I both see failures, but when you see a good result with proper treatment I think you cannot help getting enthusiastic. High voltage is important but some of Coutard's results were reported with about 175 kilovolts. I do not think the right impression has gone out with regard to early cancer of the larynx. I do not think you should send for radiotherapy an early case that can be operated on with such a high chance of success.

TUBERCLE BACILLI ON THE LIPS OF PATIENTS WITH ACTIVE PULMONARY TUBERCULOSIS

LARS GULBRANDSEN, M. D.
AND ROBERT KELLER, M. D.
CHICAGO

When the present death rate from tuberculosis in Illinois is compared with the death rates of past decades, we find the mortality has dropped from 169 per 100,000 population in 1890 to 53.3 per 100,000 in 1933.[1] But even with this remarkable reduction in the death rate, tuberculosis still ranks sixth among the major causes of death in this state, and is second only to pneumonia in deaths due to communicable diseases. From these facts it seems that control measures enforced in tuberculosis at the present time overlook accessible sources of infection which permit a fairly widespread distribution of the organism. We have been convinced for some time that these sources are of a nature comparable to those found in other infectious diseases, sources which afford a direct transfer of infectious material from one person to another. Our considerations in this problem became

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clearly defined as a result of the work reported recently by Stuart, Knudsen, and Arnold.[2] These investigators showed that while healthy skin surfaces are able to destroy bacteria at a rapid rate, the exposed portions of the lips have little self-disinfecting power. In fact, the lip region acts as a reservoir for bacterial populations, giving rise to part of the flora of the mouth. This study suggested that in pulmonary tuberculosis, the lip region might be a source of dissemination of the tubercle bacillus not recognized in the epidemiology of this disease. It was from this standpoint that the following work was undertaken.

Experiment 1: Tubercle bacilli on the lips.

Our subjects were selected from one of the tuberculosis hospitals in the city of Chicago*. We were interested only in those patients having active pulmonary lesions of tuberculosis, with sputa positive for tubercle bacilli on direct smear stained by the Ziehl-Nielsen method. This type of patient was used throughout this work.

Initial attempts to find tubercle bacilli on the lips of these patients consisted in passing a sterile swab moistened with sterile saline solution over the lips, and preparing slides which were stained by the Ziehl-Nielsen method. A total of 150 slides from ten patients were examined, and after prolonged study of the smears without being able to find acid-fast organisms, we came to the conclusion that this method was not delicate enough to detect tubercle bacilli which might be residing on the lips. No attempt was made at cultivation. Therefore, guinea pigs were used in subsequent experiments.

The procedure was as follows: A sterile swab was moistened with sterile saline solution. The patient was asked to hold his mouth in the normal closed position, while the moistened swab was passed over the exposed vermilion area of both upper and lower lips. The swab was then transferred to 5 c.c. of sterile saline and thoroughly shaken. Lip swabs were taken in this way at 15 minute intervals for two hours on each patient, during which time the patient was asked not to moisten the lips with his tongue. An accurate record of cough and expectoration was kept for the two hour period. At the end of the two hour period the tubes containing the swab and saline were again shaken vigorously, the fluid was transferred aseptically to sterile hypodermic syringes, and inoculated subcutaneously into the right inguinal region of guinea pigs weighing on an average 175 grams. A sample of sputum from each patient served as the inoculum for positive controls. The guinea pigs were obtained on the day they were used from a farm outside the city of Chicago, a source which has proven satisfactory for tuberculosis diagnostic work in this laboratory for the past six years. A total of 72 guinea pigs—9 for each of 8 patients—were inoculated in this way. In addition, lip swabs from two healthy adults were inoculated into 8 pigs as negative controls. Six weeks after injection the animals were sacrificed, and post-mortem findings noted. From each pig, sections of liver, spleen, lungs and inguinal lymph glands were prepared for histologic examinations. Another series of sections were stained with a modified Ziehl-Nielsen stain to demonstrate tubercle bacilli in the tissues. Averages of our findings are recorded in Table 1.

This shows that tubercle bacilli could be demonstrated, by animal inoculation, on the lips of every patient in this series with positive sputum. In one case bacilli were found even after the lips had been swabbed six times since the last cough one hour and forty minutes previously. Our records, however, do not always correlate cough very closely with incidence of tubercle bacilli on the lips. In some instances no

*We are indebted to Dr. S. R. Rosenbloom of Chicago for his assistance in obtaining the patients on whom these studies were made.

TABLE 1.

Tubercle Bacilli from Lips and Nose.

	No. of Swabs Taken	No. of Pigs Injected	No. Pos. for Tuberculosis	Per Cent. Pos. for Tuberculosis	Longest Time Interval Between Coughs	Average Frequency of Cough	Average Frequency of Expectoration	Control Sputum
Lip swabs from tuberculous patients.....	64	64	54	84.3	100 min.	30 min.	15 min.	Positive
Lip swabs from normal persons.....	8	8	None	None	None	None	None	None
Nasal swabs from tuberculous patients.....	32	32	None	None	92 min.	15 min.	40 min.	Positive
Nasal swabs from normal persons.....	4	4	None	None	None	None	None	None

tuberculosis was produced in guinea pigs from swabbings taken immediately after cough, but swabbings taken at later time intervals produced typical lesions when injected into animals. This occurred even when patients did not moisten the lips with the tongue, and at present we have no explanation to offer for these peculiarities.

Experiment 2. Examinations of nasal swabs. Using the same technique as for lip swabs, we examined 4 patients to determine whether tubercle bacilli could be demonstrated within the nasi alae. Sterile swabs were introduced into the nose, rotated thoroughly, and shaken well in 5 c.c. of saline. This process was repeated at 15 minute intervals for two hours. Guinea pigs of 275 grams weight were injected in the same way as described before. All of the pigs so injected died septicemic deaths within one week after injection, and it became apparent that if the tubercle bacilli were to be demonstrated at all by this method, the saline emulsion would have to be treated in order to kill streptococcal and staphyloccocal contaminants. Accordingly, the nasal swabbing was repeated, and the swabs shaken in 5 c.c. of sterile saline solution. To each specimen, an equal volume of 3% NaOH was added, and incubated for 30 minutes at 37° C. The fluids were then brought to neutrality (phenolphthalein) with 50% HC1. The entire volume of this fluid (11 to 12 c.c.) was injected subcutaneously into the right inguinal region of the guinea pigs. Six weeks later they were sacrificed, and examined for lesions of tuberculosis as described previously. The results of these experiments are recorded in Table 1.

Although there was no evidence of tuberculosis found in any of these animals, we believe this experiment does not exclude the possibility of tubercle bacilli being contained in the nasal passages and nasal discharge.

Discussion: The result of this investigation shows that viable tubercle bacilli reside upon the lips of patients with open pulmonary tuberculosis. From an epidemiologic standpoint it follows that tubercle bacilli exposed on the surface of the body in this way have abundant opportunity to be transferred from the lips to the hands and fingers, or from the lips to whatever utensil or article comes into contact with them. As a result, persons working or living in an environment of tuberculosis have as much possibility of becoming infected with the tubercle bacillus through actual contact as one would of becoming infected with other types of bacteria from typhoid or diphtheria carriers. A few instances can be cited in which we believe this standpoint is emphazied. Opie and McPherson[3] in 1932 reported observations made during an eight year period in which they found that when roentgenographic examinations were used for the recognition of pulmonary lesions, husbands and wives in marital contact with tuberculosis under varying conditions are infected from five to nine times as often as persons with no known contact with the disease. Evarts, Potter and Dunn[4] in 1934 reported a study in which they followed the children of 136 families into adult life. At least one parent in each family was known to have had tuberculosis, in 103 instances there being actual records found of positive sputum. Among 554 children of these families, the tuberculosis mortality, in offspring between the ages of 15 and 39 years, was 2 and 3 times as high as among the general population of the same class of people. Meyers, Diehl, and Lees[5] in 1934 examined the number of positive tuberculin reactions among girls entering a nurses' training school having a tuberculosis service of 30 beds. Thirty-nine per cent of these girls presented positive reactions upon entrance, whereas 3 years later upon graduation, 100% had positive tuberculin reactions.

Apparently, in these instances, tubercle bacilli are being disseminated along avenues which are not encompassed by present methods of tuberculosis control. These measures of control consist mainly in prevention of droplet infection by the use of the handkerchief while coughing and sneezing; the proper disposal of sputum; and elimination of foods, mainly milk and meat, obtained from infected animals. But as more is understood in regard to this disease, we find these measures must be supplemented by closer attention to existing sources of infection. The patient with tubercle bacilli in his sputum must be looked upon as a "carrier" of tubercle bacilli with the same public health status as a carrier of typhoid or diphtheria. Consequently, if measures are to be taken to prevent dissemination of tubercle bacilli exposed upon a body surface in this way, these measures must be concentrated

upon the patient. Our recommendations consist of instructing the patient in regard to personal hygiene. Along with the proper disposal of sputum, he should be taught that tubercle bacilli reside constantly upon his lips, and therefore any object which comes in contact with these structures such as fingers, hands, tableware of any type, and towels have an opportunity of becoming contaminated with tubercle bacilli. In addition, adequate facilities should be provided for washing the hands and lips at frequent intervals, in order to maintain the self-disinfecting power of the skin at its highest activity at all times. In brief, all the principles of medical asepsis as practiced in regard to other infectious and communicable diseases should be instituted in the care of tuberculous patients.

Summary: Tubercle bacilli have been found upon the lips of patients having open pulmonary tuberculosis. Organisms exposed in this way can survive for periods of 1 hour and 40 minutes and still be viable. This source of infection is not under control by any of the methods now enforced in caring for tuberculous patients. Closer attention to medical asepisis in order to suppress dissemination of the tubercle bacillus is recommended.

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DISCUSSION

Dr. D. O. N. Lindberg, Decatur: Before reading the few pages I prepared after looking over Dr. Gulbransen's excellent presentation, I would like to make a few comments by way of preface. It is a fact that many of these things should be considered from the practical aspect. Regardless of whether we consider the person who is non-allergic to be more unsafe than the person who is allergic, the fact is that the non-allergic student nurse who enters training in a general hospital has four times the incidence rate of active pulmonary tuberculosis as the allergic student nurse. This remains a fact aside from the question of whether or not allergy produces a state of relative immunity.

A word, too, about the high degree of contagiousness that this work suggestions—we must realize that there are two main channels of infection; one, inhalation, and the other, ingestion. In a well-organized and regulated tuberculosis sanatorium where the patient is instructed carefully to cough into a paper napkin and the material is burned and the dishes are sterilized, a non-allergic student nurse can go through her whole course of specialized training and never develop tuberculosis; never give evidence of even primary infection. From the inhalation standpoint, therefore, we find, that, practically speaking, a strict contagious hospital type of regime is proved unnecessary.

It should not be difficult to completely accept the findings of Drs. Gulbrandsen and Keller which indicate that tubercle bacilli may remain on the lip surfaces of the "positive sputum" case for a period of nearly two hours following the act of expectoration.

Infections by the lip and finger modes occur, of course, not through the inhalation portals of entry but rather by the ingestion route.

The fact should not be overlooked that, as has been established experimentally, the normal gastrointestinal tract, through its juices, fermentation and peristalsis, easily dispose of small doses of tubercle bacilli. The experiment might have been of greater than academic interest if the number of bacilli found upon the lips of the group studied, had been determined.

That such observations are necessary in any attempt to stress the rôle played by the transfer of bacilli from the lips of the patient to articles which in turn might enter the digestive tract of other persons, is suggested by the vast amount of experimental data already at hand.

Findel, for example, using the most susceptible of experimental animals, the guinea-pig, fed fourteen (14) of them with food containing 19,000 to 382,000 tubercle bacilli of average virulence. He was unsuccessful in producing disease in any of the animals during an observation period of one hundred and seventy-four (174) days.

The conclusion that persons working or living in an environment of tuberculosis are menaced by infection to the same degree as in the case of typhoid fever, etc., appears not to be justified by the experience of phthisiologists over the centuries. Fishberg states, in this connection that, "the principal supported by generations of experience is diametrically opposed to our procedure in dealing with such diseases as the exanthemata, typhoid fever, etc.—in which no competent physician thinks of exposing an individual, though a strong suspect, to the risk of infection from established cases."

In a recent, unpublished questionnaire study of the incidence of manifest tuberculosis occurring among the personnel groups of sanatoria in the United States, further support was given the observation made by Dr. C. Theodore Williams, long before the discovery of the tubercle bacillus, and before precautions were taken to prevent the transmission of the disease, that infection among the staff personnel was seldom observed.

The recommendations concerning the precautionary regime to be followed in the case of the patient, except-

ing for the strictest contagion type of regime considered by most of us to be unnecessary, are those which have been routinely observed in standard sanatoria for a great many years.

The incidence of tuberculous disease among student nurses undergoing training in general hospitals, would become lowered and conjugal tuberculosis lessened if the simple, common-sense, methods of prophylaxis were carried out in both home and hospital.

Dr. Gulbransen, in closing: I might counter the statement advanced by Dr. Lindberg with the statement that the guinea pig, being a highly susceptible animal, fed with tubercle bacilli did not contract tuberculosis with the same observation we have made in regard to diphtheria in guinea pigs, under the same conditions of experiment. We have fed guinea pigs excessively high doses of diphtheria bacilli over a continued period of time and have had no deleterious effects produced in the growth curve or in the weight of these animals whatsoever.

So, while experiments may bring out the fact that ingestion of the infectious organisms did not necessarily produce the disease in the animal, I don't think we can overlook the fact that the average of ingestion is a possible portal of entry. Of course, physiologic variations that occur in the life of the individual are of such nature that at certain times they are more susceptible to disease than other times, but this variation seldom exists in the laboratory animal.

The point we wish to stress, is that these precautions in regard to the tubercle bacilli being exposed on the lips could be applied very practically in homes where there are small children in contact with the patient. I don't think anybody will deny this.

EXPOSURE TO COLD AS A FACTOR IN THE ETIOLOGY OF A LOBAR PNEUMONIA

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Many patients with pneumonia, in any of its forms, give a history of having had some disturbance in the upper respiratory tract previous to the development of pulmonary symptoms. Since this sequence is of frequent occurrence, some investigators (Cole),[1] have suggested that even in lobar pneumonia the pneumococci are only secondary invaders in a process primarily caused by some other agent, possibly a filterable virus.

The comparatively large variety of microorganisms that are associated with lobar pneumonia speaks against the absolute specificity of the pneumococcus as the causative agent, although it is found in the vast majority of the cases. In this connection it is not without interest to cite the observations of Gohar and Aboud[2], who studied culturally specimens, obtained by lung puncture, from seventeen cases of pneumonia in children. In only four of the seventeen cases were there solely pneumococci; in two there were pneumococci and some other organism; and in the remaining eleven cases, they found no pneumococci, but various other pathogenic organisms.

Smillie and Leeder[3] in their extensive observations, have found that a healthy carrier of type I pneumococcus does not transmit this organism to immediate contacts, even though the individuals are living under overcrowded conditions. From their evidence they suggested that there is some factor other than simple contact which determines the transfer of type I or II pneumococci from a patient with lobar pneumonia to contacts, and that family epidemics of colds may be such a factor operating in the transfer and establishment of type I and type II pneumococci from the infected to the uninfected.

Carriers of type I and type II pneumococci, when once established, may retain their role for a considerable period of time without contracting lobar pneumonia, without inducing it in contacts, and without producing a second group of carriers. Jacobson[4] has concluded that social status and race do not seem to influence the percentage distributions of fixed type pneumococci in normal throats. The percentage of normal individuals showing fixed type pneumococci was greater during the pneumonia season (January to April) than at any other time of the year. Healthy persons intimately associated with cases of lobar pneumonia acquired the homologous type of pneumococcus and harbored it in their throats for a long time, but hospital attendants in contact with lobar pneumonia did not harbor the same types of pneumococci as the patients.

In studies on the epidemiological factors in pneumonia of children, Schultz[5] has compared the virulence of the pneumococci from several cases with that of the strains isolated from the corresponding carriers and found no significant variation. Gundel and Wasu[6] have likewise stated that the virulence of pneumococci among the different types isolated from healthy and sick persons is practically the same.

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Concerning the widespread distribution of pneumococci, Gundel and Schwarz[7] have pointed out that the pneumococci may be found quite often in the upper respiratory tract of newborn children after the second or third day of birth. Indeed a wide distribution of pneumococci among the healthy population, with variation in types according to the season, has been repeatedly observed by a number of investigators.

From this brief review of the literature, we see that the question of etiology of lobar pneumonia is still obscure. The pneumococcus, which causes over 80 per cent of the total cases of lobar pneumonia is not considered definitely as a primary cause. Its wide distribution speaks for itself. The investigators suggest that there is some other factor, that promotes the activity of the pneumococcus. The suggestion of a filterable virus would be a very convenient one, but the question of a filterable virus, as a causative agent of colds does not hold true for all colds.

We know of many cases of colds (that precede the pneumonia) which are easily traced to the exposure to cold or wet. The filterable virus, as a primary causative agent of colds, does not explain in full such intimate connection, so many investigators are led to seek some other factors that may be involved in these cases. Schmidt[8] found that colds occur most commonly in persons whose heat regulatory system easily breaks down. If a person is chilled for some time, a contraction of the blood vessels of the skin and of the mucous membranes of the respiratory organs appears. In a healthy person, however, this vascular contraction of the mucosa soon retrogresses; whereas in a person who is predisposed to colds, it continues much longer. In addition to the congenital or acquired predisposition to a persistent vascular contraction, following the cooling of the body, there is another predisposition necessary for the development of a cold or catarrhal manifestation; namely, the chronic infection of the mucous membrane with bacteria, such as pneumococci, streptococci and influenza bacilli. The predisposition to colds, he states, may be accentuated also by nervous exhaustion and by psychic influences. The normal person will have a tendency to colds if special conditions deprive him of his proper heat regulation; a draft or unperceived current of air constitutes an added cause.

In the etiology of a cold, therefore, many separate and distinct factors play a part. Therefore the colds, which antecede the beginning of lobar pneumonia, we assume, depend largely upon the upset in the circulation of the mucous membranes of the upper respiratory tract.

Grant, Mudd and Goldman[9] showed that the nasal cavity, postnasal space, palatine tonsils, pharynx and skin react to chilling of the body surface with reflex vasococonstriction and ischemia. They proved this by measurements of the temperature of mucous membranes of the above mentioned regions and organs. We[10] extended these temperature measurements to the upper part of the trachea and at present to the lower part of the trachea and primary bronchi.

For our temperature readings of the mucous membranes of trachea and bronchus, we used a Queen's potentiometer. For the temperature measurements of the mucous membrane of the trachea the ends of three thermocouples (devised by Dr. Bachem) covered with shellac and embedded in celloidin; and for recording the temperature of the mucous membrane of the bronchus the three thermocouples mounted on a piece of rubber tubing of suitable diameter, and fastened with a rubber band, were used. Under nembutal anesthesia a tracheotomy was performed and the embedded thermocouples were introduced and applied flatly to the surface of the mucous membrane of the trachea, fastened by a piece of cork, the latter resting on the opposite side of the trachea; and for the bronchus, thermocouples mounted on rubber tubing were introduced into the primary bronchus. Heparin was injected intravenously (10 mlg. per kilo), the femoral artery opened and a long glass thermometer introduced through it into the abdominal aorta. Ice packs and hot water bags were applied to the skin of the chest of the dogs.

Previously (Nedzel[11]), we have reported the results of twenty-four experiments on eight dogs on temperature changes in the trachea in relation to heat and cold on the skin. Here we present our findings in eighteen experiments on six dogs, using a more refined technic. The observations were extended on the upper and lower trachea and primary bronchi, using two dogs for each part of the respiratory tube, experimented with. On each dog three experiments were performed. The experiment consisted in applying, first, ice bags to the body surface of the dog and after a certain time, removing them, and, in the

second place, applying hot water bags and removing them after a definite interval. We presented an average of all the experiments performed on the same part of the respiratory tract, since they all, in general, run alike. It is worth while to mention that individual dogs reacted

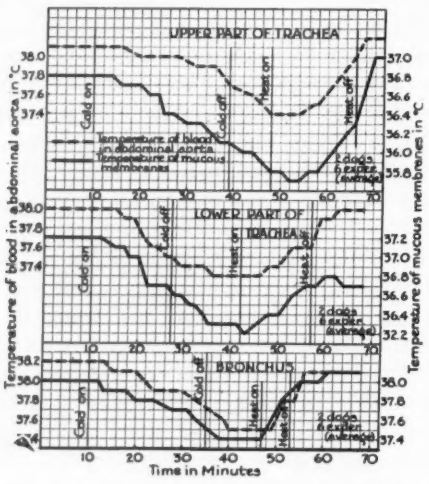

Chart 1. The abscissa represents the time in minutes from the beginning of the experiments, the ordinates, temperature in Centigrade. The perpendicular lines show the time of application of cold and heat to the body surface of the dog. Dotted lines represent the temperature in the abdominal aorta, the straight lines, the temperature of the surfaces of the mucous membranes.

differently in the degree of reaction toward the application to heat or cold, namely, some dogs were more sensitive and some more stable, a fact, previously emphasized by us (Nedzel[10]).

The results are shown on the accompanying charts. The abscissa represents the time from the beginning of the experiment, the ordinates, temperature in Centigrade. The perpendicular lines show the time of application of cold and heat to the body surface of the dog. On chart I, the dotted lines represent the findings of the temperature in the abdominal aorta, the straight line, the temperature of the surfaces of the mucous membranes.

It is easy to see that the application of cold is followed by a drop of temperature in the abdominal aorta and on the mucous membrane of the trachea. The application of heat acts reversely, but in both cases the fall and rise of temperature on the mucous membrane is more pronounced. In case of a bronchus there is no such pronounced deviation which we explain by the vast concentration of blood in the lungs that conducts its temperature to the mucous membrane of the bronchus.

The second chart represents the results of the same experiments, but here we expressed the temperature in the abdominal aorta as a constant and the temperature of the mucous membranes in a curve. The latter shows the deviation of the temperature of the surfaces of the mucous membranes from the temperature in the abdominal aorta, recorded at the same periods.

These deviations are more pronounced in the mucous membranes of the upper trachea, less in the lower trachea and relatively negligible in the primary bronchus. It should also be noticed, that these deviations (rise or fall) do not occur gradually, equally, but appear in irregular wave-like manner all the way through the experiments.

The recorded temperature measurements give us an understanding of certain physiological processes that are going on in certain regions. The lowering of the surface temperature means contraction of the blood vessels of the mucous

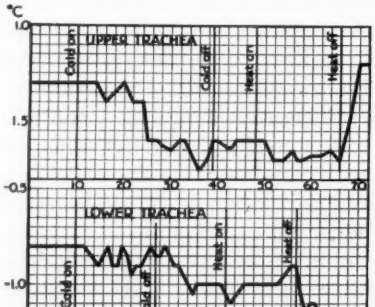

Chart 2. The temperature in the abdominal aorta expressed as a constant, the curve represents the deviation of the temperature of the surfaces of the mucous membranes.

membranes of the respiratory tract, and this coincides synchronously with the same phenomenon on the skin.

This response of the blood vessel bed of the mucous membranes of the respiratory apparatus

is not gradual and equal, as shown on the second graph, but occurs in wavelike manner all the way through. This we believe, can be explained only by a loss of equilibrium in the blood vessel's bed of the mucous membranes, when the contractions and the dilatations of the blood vessels do not appear uniformly and equally.

The autonomous nervous system, as pointed out many years ago by Dastre and Morat,[12] acts as though it were composed of two parts, which constantly and simultaneously act in opposite directions, balancing each other. The activation of one leads to the immediate inhibition of the other. On one side we have the splanchnic region and on the other the periphery. The later experimental and clinical evidence substantiate their conclusions. The diminished peripheral activity, as it is noted by contraction of peripheral blood vessels, leucopenia and diminished permeability, is accompanied by increased activity in the splanchnic region. There is an increase in gastric secretion (Müller and Petersen,[13, 14] Arquin[15]), and in secretion of bile (Petersen and Müller,[16] Müller and Kast[17]), the concentration of leucocytes in the splanchnic vessels during the activity takes place Müller[18]), there is also an increase in permeability in the liver and splanchnic region (Petersen, Milles and Müller[19]).

On the other side, the alkalinization of duodenum, which lowers the activity of the splanchnic region, is accompanied by a peripheral leucocytosis (Arnold and Brody[20]). Increase in the activity of the skin glands and permeability and a peripheral leucocytosis are accompanied by a diminished activity in the internal or splanchnic region (Müller and Petersen,[14] Petersen and Oettingen[21]). Bogendoerfer and Sell,[22] studying 170 healthy and sick persons, found that the application of heat or cold to the skin would cause decrease or increase in the flow of gastric juice and correspondingly—the amount of hydrochloric acid content in the latter.

Activity of the splanchnic region can be judged also by the degree of the selfdisinfecting power of the gastrointestinal tract. If an animal is kept in ordinary temperature his splanchnoperipheral balance is in a state of equilibrium and the stomach exercises its disinfecting power by destroying the exogenous bacteria and by keeping the endogenous flora of the intestinal tract at its usual level, the stomach and duodenum being practically free from fecal flora. But as soon as the animal is placed in the warm room, the periphery increases its activity, there is a dilatation of skin blood vessels, etc., while the splanchnic region becomes inactive, the exogenous bacteria introduced into the gastrointestinal tract are not destroyed, the fecal flora is out of control and appears in the duodenum and stomach (Arnold and Brody,[23] and Arnold.[24, 25])

Tiemann[26] states that the lung vessels act as do the peripheral blood vessels. Müller and Holscher[27] experimentally show that the leucocytes of the lungs quantitatively and qualitatively coincide with the same of the skin. We[11] showed the similar phenomenon for the trachea. Tendeloo[28] states that chilling of the skin causes stasis and edema of the lungs.

All cited evidence stresses the importance of a splanchnoperipheral balance. The increase in activity on one side of this system automatically supresses the activity on the other side. The significance of this physiological phenomenon is clear. The upset of one of the organs may lead to a synchronous dysfunction in a whole group of organs that belong to the same side of the splanchnoperipheral system.

Our experiments and those of others show that the respiratory tract falls into the latter group (the peripheral), and reacts to exposures similarly and synchronously with the skin.

The manner in which the dissemination of pneumococci from the upper respiratory tract into the lung occurs is still doubtful.

Fried[29] in his studies of anthrax infection in rabbits found that the intratracheal introduction of bacilli causes no disease in rabbits provided the extrapulmonary tissues are spared contamination. The microorganisms so inoculated are retained by the lungs and are destroyed within a few hours after the infection. The destruction of the highly pathogenic bacilli is performed by the macrophages by way of phagocytosis. The cells found in groups alongside the wall of the air sacs (so-called alveolar epithelium) play the outstanding role in the phagocytosis of the anthrax bacilli. The experiments have likewise shown that the pulmonary reaction to this "virtual" infection is akin to the "model infections" with vital dyes and oils, reported in his earlier studies. Wadsworth[30] found that the intratracheal injections of virulent pneumococci into normal rabbits was fol-

lowed by a rapidly fatal septicemia without local lesions, while similar injections in partially immunized rabbits were often followed by a characteristic pneumococci consolidation. Fried's experiments show that injection of small amounts (1 cc.) of horse serum into the lungs of normal rabbits produces a transient pneumonitis confined to the dorsal aspect of both lungs, but the injection of the same amount of horse serum into the lungs of rabbits that have been previously sensitized to the same serum, causes, in a high percentage of cases, a lesion which is confined to one lung with the gross and microscopic features of lobar (fibrinous) pneumonia as seen in man.

On the other hand, Blake and Cecil[31] in their production of pneumococcus pneumonia in monkeys found that the pneumococcus is unable to produce pneumonia following intravenous injection. They state that the invasion of the blood stream in lobar pneumonia is secondary to infection of the lungs. Blake and Cecil produced a pneumonia by direct intratracheal inoculations of pneumococci. But Seegal and Seegal[32] show that the injections of pneumococci by the tracheal route to produce lobar pneumonia in rabbits (as Cecil and Blake have done) include an intravenous administration of these organisms, when the mucosa is pierced or injured. But we know also (Reith and Squier[33]) that it is quite common to find an existing bacteremia in apparently healthy persons.

In studying these experiments and observations, which appear as though they conflict, we may derive a certain conclusion. The presence of pneumococci in the upper respiratory tract is not considered sufficient cause for development of a lobar pneumonia. It is a dysfunction of the upper respiratory tract (no matter how produced, with filterable virus or other factor), that must precede the development of the pneumonia and this disturbance must be of such extent or type, that will involve simultaneously the whole respiratory tract and lead to the lowered resistance of certain tissues. This locus minoris resistentiae occurs where normal blood circulation is impaired. The vascular contraction of mucous membranes of the respiratory tract, which accompanies that of the skin during exposure, causes a delay in the mobilization of the defensive forces and as a result of this disturbance in the irrigation of tissues, they become impaired and the bacteria present find a favorable field for their development. The exposure of the body to cold is a powerful factor that causes not only the contraction of blood vessels of the skin, but also on account of the existing splanchnoperipheral balance, involves the blood vessels of the mucous membranes of the whole respiratory tract and causes stasis and edema in the lungs. If pneumococci are present, the lowered resistance of the whole respiratory system somehow permits the pneumococci to descend, lodge in the tissue of the lungs and multiply. The upset of the defense power of the lung is well shown by the cases of lobar pneumonia, following the inhalation of various irritating vapors (Tice[34]). These clinical observations are supported experimentally by Winternitz, Lambert, Jackson and Smith (Winternitz[35]). They found that after chlorine poisoning, organisms that normally inhabit the mouth of the dog find their way into the bronchi and lungs of the dog shortly after gassing and in animals that survive the acute period, remain there for a long time. They show that the pneumococcus and a small gram negative hemoglobinophilic organism, normal inhabitants of the dog's mouth, can be cultivated from the lung as early as one-half hour and as late as four days after gassing. In studying the bacteriology of pneumonia following gassing with phosgene, they found that the bacteriological findings were much the same as in cases of pneumonia in non-gassed dogs.

Indirect confirmation of our thesis is found in the experiments of Terrell, Robertson and Coggeshall[36]. In developing a new method of producing pneumococcus lobar pneumonia in the dog they found that the injection of morphine will facilitate production of the disease in the animal. It seemed that the depressant effect of the preliminary injection of morphine has an important bearing on the inception of the disease. They also noted that the disease appeared to be influenced by certain other conditions, as for instance, by intercurrent respiratory infection, such as snuffles and by the temperature of the environment. Several dogs infected during hot weather recovered after a moderately severe disease, though the same dose regularly produced a a fatal outcome when given during cool or cold weather.

Let us consider the factors that promote the spread of pneumonia, so well recognized by prac-

titioners. Exposure to cold and wet; the winter and spring seasons, when we have the most abrupt meteorological changes; age groups of 12 to 35 years, the most active in the outdoor life; men who are more liable to exposure; alcohol, carelessness on the part of intoxicated persons and impairment in their heat regulating apparatus; negroes, who are adjusted to more equitable climate, etc.

The epidemics of lobar pneumonia that break out in closed institutions or in overcrowded quarters may be explained not only on account of possibilities of more close contact among the sick, but also by taking into consideration that they are under the influence of the same living conditions, and are exposed to the same causes which may impair their general resistance.

Exposure to cold acts as a powerful impulse and definitely upsets the splanchnoperipheral balance. The impulse causes the respiratory tract in toto to undergo physiological changes which favor the penetration and localization of pneumococci or other organisms (already present in the upper respiratory tract) in the lung tissue and permit their multiplication, with deleterious clinical consequences.

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THE IMPORTANCE OF INTRADEMIC REACTIONS

C. A. EARLE, M. D.

DES PLAINES, ILL.

With no idea of belittling the laboratory, the x-ray or the old time physical examination I desire to present the claims of the skin as evidenced by its reactions as an important aid not only in the diagnosis of diseases but as a revealer of immunity or susceptibility to disease itself. It is apparent that disease prevention is receiving and will receive increasing attention as time passes. Because of the conservatism of the general practitioner Public Health bodies are doing much of this practice which the family doctor should do. Permit me to recount the history of some of the measures, the importance of which many medical men have failed to grasp. As far back as 1913 Bela Schick devised his test which shows with almost mathematical certainty that a person is susceptible to diphtheria if positive and immune if negative. The accuracy of this test was shown from the very beginning by measuring the antitoxic content of the blood. Because of the high percentage of children from 6 months to 3 or 4 years of age who are susceptible they may be immunized without a previous Schick test but all above this age should be tested first before receiving T A or toxoid. It is not necessary nor scientific to give an immune child these protective doses. Excepting the elaboration of toxoid no improvement has been made in the prevention

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of this disease for 22 years and yet it is only during the last 5 or 6 years that the family doctor has done much of this work. At least once a year all children above 3 years of age, without regard to their previous immunity status, should be retested because now and then there is a slipping of immunity in both the natural and artificial immunes. In addition to the knowledge gained as to the immunity status of the child by these repeated tests it has been definitely shown that the test itself has immunizing power. A single skin test given to a child who is but slightly susceptible may result in such an increase in the antitoxic content of the blood that he would not get diphtheria.

In 1924 Gladys and George Dick reported the elaboration of a skin reaction for susceptibility to scarlet fever. While this test is perhaps not quite as accurate as the Schick test, its reliability warrants its general use. Because of the mildness of scarlet fever during the last few years and the rather severe reactions that sometimes follow the 5 doses of immunizing toxin it has been difficult to popularize these preventive measures. However, that they are effective has been abundantly shown in nurses' homes, orphanages and other institutional life. All children should be Dick tested even if the susceptibles are not immunized. It is certainly worth something for a parent to know whether his child might get scarlet fever if exposed. The State Department of Health recognizes the value of this test in not quarantining those who give a negative test.

Twenty-eight years ago Von Pirquet announced his scratch test for tubercular infection. Three years later Mantoux brought out his intradermic tuberculin test. The history of no other diagnostic device illustrates so well the conservatism of the medical profession. Here is a test that when positive points almost infallibly to tubercular infection, not necessarily to tubercular disease, and although perfected 25 years ago it is still not in common use by the general practitioner. Every child should get this test. Those giving a positive reaction should be x-rayed. Now and then an active case will be found that never was suspected. In addition a diligent search should be made for the source of the infection of those who react positively. Usually its origin will be found in the home, but may be from the child's teacher. In this way symptomless active cases of tuberculosis may be unearthed. I am constrained to believe that with the general use of this test and the x-ray, with the modern methods of treatment by rest, collapse therapy and surgery, in another generation the great white plague will be conquered.

The technique of these tests is easily acquired. It consists in injecting into the skin 1/10 cc of a properly diluted antigen. The results are as enlightening for which they are used as are the results contained by the electrocardiograph, the metabolism apparatus or the microscope. I can not insist too strongly that the technique and interpretation of these tests should be the common property of every general practitioner. Eleven years ago in speaking of the Schick test at a meeting of this society I made the following statement: "The knowledge and skill thus acquired have great potential possibilities for similar tests and procedures for control of other diseases will undoubtedly be discovered." Such has come to pass. Foshay has abundantly shown the intradermal test for tularemia can be elicited a week before agglutinins appear in the blood. The skin test is also of some value in the diagnosis of that baffling disease—undulant fever. To a limited extent it is used to determine food allergy. The Frei intradermal test for lymphogranuloma inguinali is practically specific for that disease. Muskalblat and Director conclude that the intradermic test with fungous extracts, while not absolutely specific, are of considerable value in diagnosis of skin infections. We may look in the not distant future for a skin test for polio and a vaccine for immunization against that disease as well as against the various types of pneumonia. Frances, in Archives of Pathology of October, 1933, says the skin test has proved to be an extremely valuable aid to serum therapy in certain types of pneumonia. It has a distinct advantage over the agglutinin reaction in that it is not merely an index of circulating antitoxin. When positive it invariably denotes that recovery has begun; when negative it is an indication for further serum therapy.

In addition to the knowledge gained by these tests their repetition will have an educational value. People will learn that they are devoid of danger and that no unpleasant results follow their use. They will consequently be more

prone to have their children given the repeated tests that infectious disease prevention warrants and other diseases suggest. There is also an economic bread and butter side to this question which physicians are beginning to feel. Let me quote from a recent paper by Dr. Chadwick. He says: "With the lessening and eventual control of the communicable diseases the physician has been deprived of much remunerative practice. This financial loss can in a large measure be compensated for by taking advantage of the opportunity to carry out immunization procedures. In other words practice preventive medicine. The apathy of the medical profession can not indefinitely postpone the use of the methods of disease detection and prevention that science has elaborated. Our dog in the manger attitude rightfully subjects us to criticism."

Some years ago when John Dill Robertson was Health Commissioner of Chicago he offered at a branch meeting of the Chicago Medical Society to have his doctors Schick test children and refer the positives to their family doctor for immunization. The offer was indignantly refused with the statement that they would do the testing themselves. A year afterwards I was unable to learn that any of these doctors had done any considerable amount of testing. It is common knowledge that every succeeding Commissioner of Health of Chicago has tried to interest the profession in diphtheria prevention but always with scant success.

If through the inactivity of the medical profession Public Health bodies take over the prevention of communicable disease it is not unreasonable to assume that they may invade other departments of practice.

The work of the scientific investigator when it professes to throw new light on traditional and customary practice has always been received with more or less skepticism by the rank and file of the medical profession. However charged the air is with neglect and disbelief, some progress is being made. Let us hope for the sake of the future practice of medicine that more interest will be taken in these newer methods of disease control.

DISCUSSION

Dr. Henry C. Niblack, Chicago: The value of these procedures is undoubted and their execution simple. The question now is how to make their use by the private physician more widespread. Up to the present, their use has been sponsored principally by public health organizations. Now that their value has been demonstrated, I believe that this work should be taken over by the private physician. Public health organizations have enough problems facing them; every time the private physicians can assume the responsibility for a health procedure, that much more opportunity is given the community health agency for other urgent activities.

We have done considerable Schick testing and immunizing against diphtheria during the past few years in our community. It has been interesting to note how much greater the part of the private physician in this work is now than in the beginning. This is encouraging. It is also interesting that the interest in Dick testing and immunization against scarlet fever has increased, both on the part of laymen and physicians. There seems to be a carry-over from the interest in the first to the second. Possibly the increase in the incidence in scarlet fever during the past season has had something to do with this. As a public health procedure I should say that immunization against scarlet fever is still difficult, but it is satisfactory in the hands of the private physician where he has his patients under control; this is also true of controlled groups in institutions.

Regarding tuberculosis, nothing need be said about treatment. However, if we are to continue the battle and finally succeed, we must, more than heretofore, find the cases in the early stages. This responsibility must necessarily lie with the private physician. In the Mantoux test, he has a simple means of detection.

So here we have these instruments of disease prevention. The average layman may say that they belong in the luxury class. People do not weigh the cost of prevention against a possible long period of costly illness in the future. All of us, as physicians, must everlastingly continue the education of the public as to the importance of these and like measures. It is up to us to put into effect the principles of preventive medicine.

SIMPLIFIED TECHNIQUE OF ABDOMINAL SUPRAVAGINAL HYSTERECTOMY

EMIL JONAS, M.D.

CHICAGO

A simplified technique of abdominal supravaginal hysterectomy is presented and diagrammatically illustrated. The pathological or normal location of the round ligament is of greatest importance in the application of the method. The operative procedure and discussion will be limited to the following very common condition, fibromatosis, but may be used in any other situation requiring operation. The basis of the technique is the pathological anatomy of the large fibromyoma, namely: serous, intramural and submucous types.

Pathological anatomy—Any of the six following pathological possibilities may be encountered after entrance into the abdomen, to wit:

Fig. 1. The eye meets a large fundal mass which obliterates normal structures. In this instance the orientation must be immediate by referring to the mental image that the round ligaments, Fallopian tubes and ovaries are below

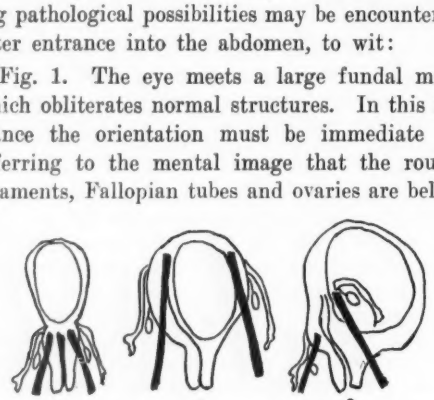

Fig. 1. (Winter, Gyneckologische Diagnostik)

the tumor mass, and symmetrical on the lateral sides of the uterus because the tumor mass exerts no pressure on these parts.

This mass may be wholly subserous, intramural or both. Unless unusually large it should be disregarded and an immediate procedure to the supravaginal hysterectomy below the tumor begun.

Fig. 2. If the mass is situated in the uterus below the insertion of the round ligaments, so that the round ligaments are pushed up high and both ovaries are symmetrical on the side of the tumor. We find the same condition with interstitial and submucous types. Location of the round ligament is of the greatest importance before applying the method later described. In this case the round ligament must be ligated high up, and a separation of the anterior and the posterior layers of the broad ligaments done before reaching the vesicouterine reflection of the peritoneum and uterine vessels.

Fig. 3. The fibromyoma is situated in one wall of the uterus. This wall is stretched upward and the whole uterus lies obliquely and crooked; the round ligament on one side is way down and on the other side high up and it goes obliquely above the tumor. One ovary lies way below and the other high up on the tumor. In this case the operation must be started below the tumor and separation made in the shortened ligament from the bladder and ureter. This shortening occurs opposite the tumor and the structures are in normal relation to the displaced uterus.

Fig. 4. If the fibromyoma is situated between the layers of the broad ligament, the round ligament and the adnexa are lateral to the tumor mass and in normal relation to the uterus and freely movable. The round ligament and the adnexa on the side of the tumor is separated from each other so that the former lies anteriorly and the latter posteriorly and the tube is displaced to the top of the tumor. Keeping this in mind, the operation is begun on the freely movable normally situated ligament and adnexa by means of multiple clamps and the adnexa on the tumor side is located and clamped as shown in diagram 4.

Fig. 5. If the tumor mass is in the posterior wall of the uterus, both adnexa and round ligaments are found anteriorly.

Fig. 6. If the tumor mass is in the anterior wall of the uterus both adnexa and round ligaments are found posteriorly, prolapsed in the pouch of Douglas. The above pathological anat-

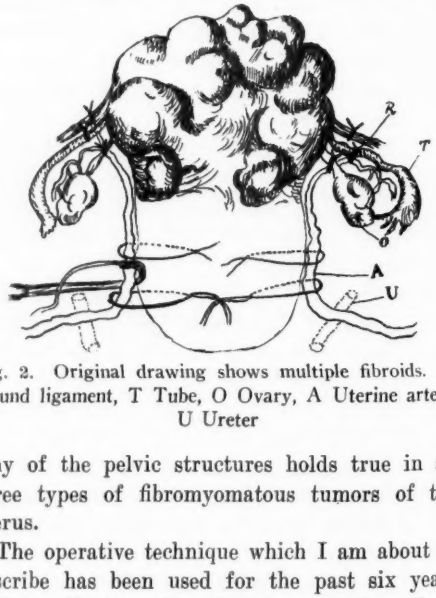

Fig. 2. Original drawing shows multiple fibroids. R Round ligament, T Tube, O Ovary, A Uterine artery, U Ureter

omy of the pelvic structures holds true in all three types of fibromyomatous tumors of the uterus.

The operative technique which I am about to describe has been used for the past six years with excellent results. Rarely more than three clamps are used.

Technique.—The steps in the ligation of the round ligaments and the adnexa are as follows:

One clamp is placed on the insertion of the round ligament with the uterus. A heavy chromic No. 1 catgut suture is placed on the lateral side of the clamp surrounding the ligament. The ligament is cut medial to the suture; the process is repeated on the Fallopian tube and the ovarian ligament proper. These three structures are similarly ligated on the opposite side. Through these steps the uterus and tumor mass should not be dislodged from the pelvis. Each of the separate sutures is left long and held by a separate hemostatic forceps placed at its terminal end. The three sutures are raised so that the anterior layer of the broad ligament can be separated from the posterior. The anterior layer of the broad ligament on each side is cut downward in the direction of the crevix, always keeping close to the uterus. The cut is extended downward to the loose peritoneum between the bladder and the cervix. The bladder is now pushed away as far as possible and a transverse incision with scissors is made on the anterior layer of the broad ligament extending from one side of the cervix to the opposite side. All blood vessels having been ligated, there should now be complete hemostasis. To this point the technique followed has been the one usually described in most textbooks. I deviate from the ordinary procedure in that I do not attempt to clamp the uterine vessels. The danger of thrombosis is minimized, I believe, if no clamps are used. The uterus is now delivered through the abdominal opening. The bladder is elevated by means of a narrow retractor as the body of the uterus is brought outward by means of a traction forceps. The posterior layer of the broad ligament is clearly brought into view. This layer is cut downward corresponding with the incision made on the anterior layer. The terminal cut ends of the anterior and posterior layers of the broad ligament are pushed downward. This exposes the uterine vessels. These are now ligated in the following manner: with a cervical needle and with heavy No. 1 chromic catgut two mass sutures are taken into cervical tissue one-half inch from the lateral margin of the cervix, one-half inch apart. The same procedure is carried out on the other side of the cervix (see diagram). The long ends of both of these sutures are now tied together on the anterior wall of the cervix. I consider this important because sometimes cervical tissue is friable and the tension on the blood vessels might be released. Between these sutures I use another ligature, carried by an aneurysm needle. This ligates the veins and arteries without and cervical tissue in it. A transverse cut above the sutures is now made and the uterus is removed. The broad and round ligaments are now anchored in the usual manner to the stump of the cervix. The peritoneal fold is sutured over the stump, thereby burying the ends of the ligaments and all raw surfaces. The advantages of this modified technique of supravaginal abdominal hysterectomy over the usual procedure lies in the following facts:

1. It is impossible to ligate the ureters for no clamps are used and the uterine blood vessels themselves are not injured.
2. There is little or no bleeding during the operation, and no danger of post operative hemorrhage.
3. The danger of thrombosis is greatly minimized for the uterine blood vessels are not traumatized.
4. Cervical stum exudate and cellulitis do not occur because of the undisturbed numerous small arterial anastomoses.
5. The uterine arteries and branches are not separated or torn away from the cervical stump so that a functional position of all the blood vessels is retained. The large cervical arteries retract and hold the cervical stump.

Conclusion. — A simplified cervical stump treatment is advocated in order to facilitate speed in operative procedure and lessen post-operative complications in difficult supravaginal abdominal hysterectomies. Abdominal diagnosis combined with pathological anatomy is the sine quo non of the success of this simplified surgical technique.

THE USE OF PROSTHESES OVER UNSIGHTLY EYES

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Considering the successful use of contact glasses for the correction of conical cornea and other defects of vision, and the surprising degree of comfort with which these thin transparent glass shells

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are often worn—so that frequently within a week the patient has learned to wear such a contact glass continuously for periods of six or eight hours—it occurred to me that a patient with a healthy globe, but with a scarred cornea or other unsightly anterior-eye condition could also, with equal safety and comfort, wear a contact glass which, instead of being transparent, is opaque and colored to match the opposite eye.

That this can be successfully accomplished is evidenced by an interesting case in my experience. A young lady attending high school eight years ago, while heating hydrochloric acid in a test tube, burned her left eye. The resulting leucoma covered the cornea. For this unsightly condition eminent oculists of Los Angeles, Buffalo, and Chicago, whom she consulted, had no remedy to offer except tatooing or enucleation.

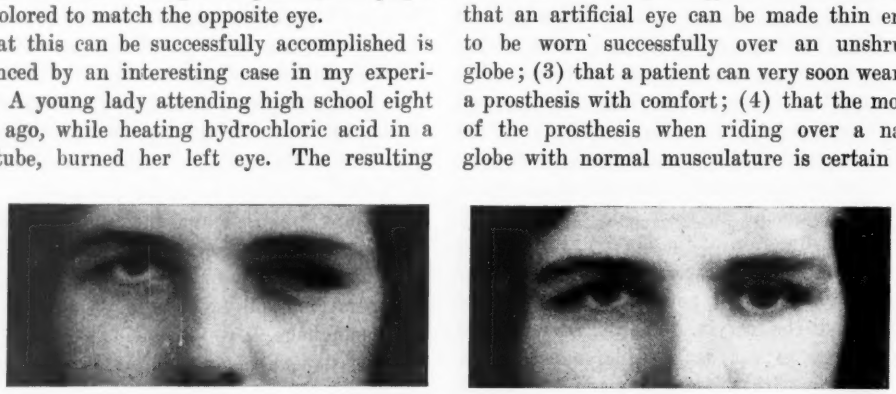

Fig. 1. (Schneider). Prosthesis over unsightly eye.

Last August, during a visit here, she related her inability to secure a desirable teaching position for which she was qualified, because of the very apparent handicap of a blind left eye. She realized the detrimental effect of this deformity and the need of its correction, but before submitting to enucleation of the blind eye she wished my opinion as to which of the several operations would prove most successful.

The injured eye was quiescent. It appeared to be normal in size and tension. Vision was reduced to hand movements. There was partial ptosis of the upper lid, probably due to a defense reaction in an effort to hide the defect. The cornea as previously stated, was covered with a leucoma.

My advice was that an enucleation was not indicated, as an ideal result could be anticipated by wearing a perfectly fitting, very thin contact-glass-like prosthesis over the injured eye. This appealed to both the patient and to the artificial-eye maker, with the result by the fourth day the patient left for California, wearing a thin prosthesis continuously and with perfect comfort and satisfaction. Recent reports from this patient confirm the complete success of the prosthesis. She says that motion of the eye and match in color are so perfect that her friends cannot guess which is the seeing eye.

This interesting experience would lead one to believe (1) that enucleation for an unsightly but comfortable eye may not be indicated; (2) that an artificial eye can be made thin enough to be worn successfully over an unshrunken globe; (3) that a patient can very soon wear such a prosthesis with comfort; (4) that the mobility of the prosthesis when riding over a natural globe with normal musculature is certain to be much better than when the prosthesis is resting on any sort of stump.

Shell eyes have been in use for many years and are frequently worn over stumps or shunken globes, but now, with our recent contact-glass experience, we should not hesitate to advise the wearing of a very thin prosthesis over an unsightly eye. They can be made as thin as a contact glass, and are as safe and as satisfactory to wear.

31 North State Street.

THE SCHOOL TEACHER AS A SOURCE OF TUBERCULOSIS INFECTION—REPORT OF AN X-RAY STUDY

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The teacher, in the schools of Illinois and other states, is permitted under existing law to perform duties which require close, oft-repeated, if not prolonged contact with the child, without any necessity of first submitting to a careful physical examination by a legally qualified prac-

Read before Section on Public Health and Hygiene, Illinois State Medical Society, May 22, 1935, at Rockford.

TABLE 1.

The Occurrence of Physical Signs (Rales)
In *280 Consecutive Cases of Active Pulmonary Tuberculosis
Admitted to Macon County Tuberculosis Sanatorium
(Diagnosis Based Upon N. T. A. Diagnostic Standards—Including X-ray

Diagnosis	No. of Cases	Rales Noted on Admission		Rales Developing with Lesions					Rales Disappearing with Lesions				
				Arrested		Retrogressive		Total	Arrested		Retrogressive		Total
		No.	%	No.	%	No.	%	%	No.	%	No.	%	%
Minimal	73	20	27.4	6	8.2	4	5.8	13.7	7	9.6	4	5.8	15.1
Moderately advanced	92	63	69.0	8	8.3	7	7.6	16.2	9	9.8	2	2.2	12.0
Far advanced	107	94	87.8	1	0.9	11	10.3	11.2	4	3.7	3	2.8	6.5
Total	272	177	60.7	15	5.5	22	8.1	13.2	20	7.3	9	3.3	15.1

*Eight of which were re-diagnosed, "Non-Tuberculous," with all but one presenting rales on both admission and discharge.

titioner of medicine, for certification as to freedom from communicable disease.

The Illinois Department of Public Health Manual[1] provides that "the employment of tuberculous persons as school employees, or in other occupations endangering the health of others is specifically forbidden." A further provision requires that "Any teacher or person employed in or about a school building, who is suspected upon a well founded belief to be suffering from open pulmonary tuberculosis or other form, shall be required to submit to a thorough physical examination, and to submit specimens of sputum and other discharges for bacteriological examination, etc." Therefore, existing Illinois law requires an examination of the school teacher, from the standpoint of tuberculosis, only if and when the disease has reached such a stage of advancement as would make her *obviously* a "suspect." Public health authorities and the medical profession generally must necessarily consider such legislation as being antiquated and altogether unprotective to the school child.

Dietrich[2], in 1930, found that only five states were known to have laws requiring teachers to be free from tuberculosis. In the meantime, "school boards, it appears, are well within their legal authority in requiring of teachers and applicants evidence of freedom from tuberculosis as well as from other communicable diseases."

The teacher has only the normal incidence of active tuberculosis as it is found among the so-called healthy adult population. In fact, according to a recent statistical study[3] when determining this "average" it should be borne in mind that it is among the unskilled workers that the high incidence of tuberculous disease occurs. However, children come into frequent and close contact with the teacher, who, if tuberculous is capable of infecting children year after year if the disease were undetected[4]. Klein[5], Vanderloo[6], along with a host of others in Europe and this country are fully agreed that in the classes that have been taught by a person affected with open tuberculosis, the number of children who give evidence of tuberculosis is increased.

In the interests of the furtherance of public health measures and in the protection of the school child from teacher sources of infection in Macon County, Illinois, the authorities of the public and parochial schools, in the absence of obligatory legislation, have passed resolutions or otherwise provided that all new teacher applicants to the school system would be required to furnish evidence, based upon an examination by a legally qualified medical practitioner, that they are in good health and are free from communicable disease. The physical examination would be supplemented by a single chest x-ray film study.

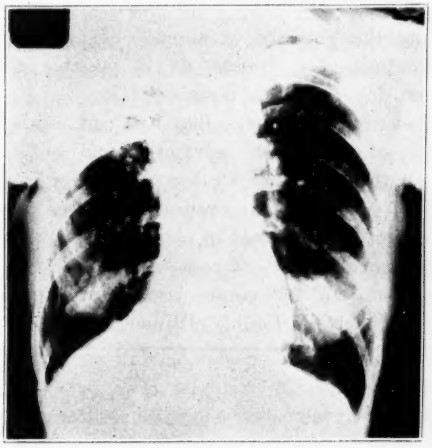

Fig. 1. X-ray film showing advanced lesion in a "symptom-free" teacher.

Provision was made so that any teacher found afflicted with tuberculosis would be given a leave of absence of an indefinite character but which would hold until the teacher was ready to return and assume her duties in the school.

The rôle of the Field Service of the Sanatorium was limited to x-ray film certification of the existing teacher group. In selecting this method we considered that experience has proved that conscientious evaluations of roentgenological examinations afford as adequate information con-

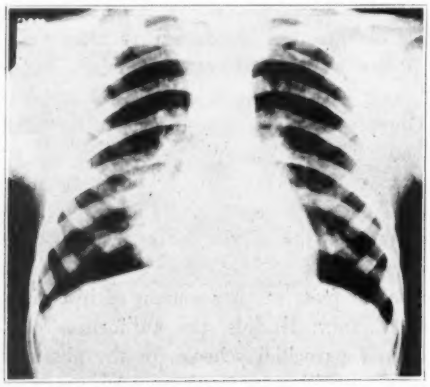

Fig. 2. Film illustrates right basal lesion of the parenchyma, typical of severe childhood tuberculosis.

cerning the presence or absence of pulmonary tuberculosis—the disease—as is possible with present day diagnostic methods[7] [8].

When it is considered that 0.0% of minimal, 17.4% of moderately advanced, and 36% of cases with far advanced tuberculosis show bacilli in their sputum under routine conditions of examination[9], this method of certification is a most untrustworthy source of case-finding.

In a study of 280 consecutive Sanatorium admissions[10], Macon County, Illinois, 72.6% of the incipient group, 31.0% of the moderately advanced, and 12.2% of the far advanced cases were negative upon chest physical examination (i. e. "râles" absent after expiratory cough) Table I. A well taken history, though constituting an important complementary diagnostic factor in tuberculosis, is nevertheless inconclusive, and therefore unsuited to survey purposes. The intradermal tuberculin test concerns infection and affords no information whatsoever concerning the presence or absence of disease. According to the findings of Peck, Jordan[11], and others, teachers may be expected to yield positive reactions averaging 50%. In our group, totaling 705 teachers, the tuberculin testing program might have "screened out" approximately 350 who could have been certified without x-ray examination. On the other hand, by the direct filming of the entire group there was avoided the usual antagonism that follows injection diagnostic methods among those who are to be examined compulsorily. If we grant that, in the presence of a positive Mantoux reaction, the possibility exists that an active lesion may exist in other organs even though the lungs appear "clear" after chest film study, we are nevertheless in agreement with McPhedran[12] who considers that x-ray findings are conclusive, and with Sergent[13] who so aptly says, "A radiological examination is an autopsy of the living." Then, too, the purpose of examination of teaching personnel is to locate tuberculous lesions of the lungs since it is from this source that infection commonly results. Extra-pulmonary lesions are not usually responsible for spread of tuberculous infections among humans.

Out of an enrollment of 705 teachers, all submitted to the tuberculosis examination. Nine

TABLE 2.

An X-ray Study of the Teacher Group
Macon County Schools—1935
(Summarized)

Ages	Sex	Number of Adults (Ages 21-78)	Examined (Roentgenograms) No.	%	Diagnosis: Active	Inactive	Infection*	Non-Tbc. Pulm.	Cardiac
20-40	F	384	384	100	6	6	165	0	22
	M	85	85	100	1	2	28	5	8
40-60	F	152	152	100	2	5	87	3	4
	M	60	60	100	0	3	24	2	8
Over 60	F	15	15	100	0	3	5	2	3
	M	9	9	100	0	1	6	1	4
All ages	F	551	551	100	8	14	257	5	29
	M	154	154	100	1	6	58	8	20
		705	100	9	20	315	13	49	Total 705

and Calcified Tracheo-Bronchial Lymph Nodes.

*As evidenced by Healed Ghon Foci (Single or Multiple)

TABLE 3.

An X-ray Study of the Teacher Group
Macon County Schools—1935
(Tuberculosis Findings—Statistical)

			Manifest Tuberculosis					Inactive			Infection*			
			Active											
Ages	No. Examined	Sex	Minimal	Mod. Adv.	Advanced	All Stages		Fibro-Calc.	Healed Miliary	Total	Ghon Focus	Multiple Ghon Foci	Calc. Lymph Nodes	Total
20-40	384	F	3	3	0	6		5	1	6	93	44	28	165
	85	M	1	0	0	1		2	0	2	18	2	8	28
40-60	152	F	0	0	2	2		5	0	5	47	21	19	87
	60	M	0	0	0	0		3	0	3	14	7	3	24
Over 60	15	F	0	0	0	0		1	2	3	4	1	0	5
	9	M	0	0	0	0		1	0	1	5	1	0	6
Total	705		4	3	2	9		17	3	20	181	76	58	315
Percent	100		0.6	0.4	0.3	1.3		2.4	0.4	2.9	25.7	10.8	8.3	44.7

*As evidenced by Healed Ghon Foci (Single or Multiple) and Calcified Tracheo-Bronchial Lymph Nodes.

(9) cases (1.3%) of active pulmonary tuberculosis were discovered (Table 2). Of these, four were "incipient"; three were moderately advanced; and two presented lesions that were "far advanced" (Fig. 1). Twenty (20) teachers showed definite adult apical tuberculosis of the parenchyma (re-infection type) which appeared to be well-controlled inactive. Parenchymal lesions totalled 4.1% (Table 3) which finding was considerably higher than that noted by Myers[11] who examined 3,626, of which 1,103 were not given x-ray examination for the reason that they were "negative" to 0.1 mgm. of old tuberculin. The findings might have more nearly approached those of this study had it been possible to retest the 49.9% of negative reactors with 1.0 mgm. old tuberculin. The mortality rate from tuberculosis in Macon County for the year 1934 was 35.9 per 100,000 so that the incidence rate of 1.3% for this group is approximately that to be expected.

Out of the cases found, eight (8) were hospitalized and one (1) resigned from school and left the county. The teacher who did not accept hospitalization was diagnosed by x-ray five years before as a "far advanced case." She had taught the first (primary) grade for 3½ years. Because of the lack of cooperation in the case of this teacher, it was decided to tuberculin test her school, including the grades which she had taught. Two hundred and fifteen (215) grade school children received the test, of which 29.2% reacted positively to 1.0 mgm. O. T. The first grade showed 40.0% reactors as compared with 8.6% among the third grade pupils. X-ray examination disclosed 13 children with active tracheobronchial tuberculosis; two with quiescent hilum tuberculosis; while one child, six years old, was found suffering from a unilateral tuberculous bronchopneumonia (Fig. 2) for which sanatorium regime was at once instituted.

Inasmuch as all new teachers will be required to submit evidence of physical fitness and all those under the age of 25 will have re-examinations on an annual basis, automatic certification as to freedom from active pulmonary tuberculosis should result. Lawrason Brown[14] holds "that evidence of pulmonary tuberculosis which is going to occur later in life can usually be detected by careful roentgenological study before or at the twentieth year." More recently, he has extended this time to include the twenty-fourth year. In our own experience, we have only in a single instance been able to demonstrate an active tuberculous lesion of the lungs occurring in the individual whose roentgenogram made at age of 25 or later revealed no manifest parenchymal lesions of re-infection type of tuberculosis.

The educational, preventive and case-finding values of this survey fully justified the expense.

Summary.—An x-ray film study was made of the school teachers, Macon County, Illinois. Seven hundred and five (705) were filmed, of whom 9, or 1.3%, were found to be actively tuberculous. The findings, of course, indicate that the school teacher has no more tuberculosis than the average adult. Her infection menace to the school child rests upon the fact that, next only to the family, she provides greatest opportunity for close, prolonged contact. Requiring the teacher to provide a health certificate, to include chest films, would serve to remove this reservoir of infection.

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DISCUSSION

Mr. B. K. Richardson, Springfield: It might be of some general interest to know there has been introduced in the current session of the legislature a bill which would require all school teachers to pass a medical examination, with particular reference to tuberculosis, before being permitted to teach in the schools of Illinois. The bill last week passed the second reading in the House, which is doing very well for a bill of that character in this present legislature. I don't know how much the work at Decatur had to do with the introduction and the carrying forward of that bill.

SHORT WAVE THERAPY IN ACUTE INFLAMMATIONS ABOUT THE HEAD AND NECK

M. H. Cottle, M.D.

CHICAGO

Heat therapy is now commonly employed in everyday medical and surgical practice. Its value in the resolution of inflammatory conditions is universally recognized. During the past two decades improved methods of electrically produced heat have been advanced which have led the profession generally to regard this subject with increasing interest.

Heating sources such as the incandescent carbon lamp, the infrared generator, the high frequency apparatus, the electric blanket, and now short wave equipment, are developments of electro-medical research which have made possible newer experimental therapy. As evidence of what has been accomplished one need only point to the results of artificially produced fever in dementia paralytica, in multiple sclerosis, and in other hitherto incurable conditions. The field of heat therapy is being extended, and although comparatively slow progress has been made with these newer procedures in ophthalmology and in otolaryngology, investigations now in progress promise revelations in the near future.

DIATHERMY

With reference to the various electrical means of heat production for therapeutic purposes, this paper must of necessity limit itself in scope. Before, however, pointing out the merits of short wave therapy, with which this presentation is mainly concerned, it is deemed appropriate to trace briefly the progress of high frequency currents or diathermy. D'Arsonval's[1] experiments first demonstrated the possibilities of generating heat electrically for therapeutic purposes. During the half century which has since elapsed, workers have been engaged in nearly every field to prove that such heating is superior to the older conductive and convective methods.

While the effects of diathermy are now no longer doubted, especially deep heating, it was necessary to provide proofs of this by experimental and clinical studies. Hollender and I[2] demonstrated the superiority of diathermy over other heating agents by animal experimentation. The accompanying table shows the comparative results of applying heat to the head by means of various sources, including diathermy.

TABLE 1

Eye Experiment 1.

Time Start	Diathermy High Voltage, 400 Milliamperes Temps. Measured Outside of Line of Current	Carbon Filament Lamp at 12 In. and Hot Wet Dressing at 136 F.
Under lid.....96	112 S	108.5
In vitreous ...97.5	110 T	105.0
In orbit 98.2	105 O	101.0
Rectal 98.8	100.5 P	99.4
Surface 90	111.6	134.6

From the Department of Physical Therapy with the Cooperation of the Eye, Ear, Nose and Throat Departments, Cook County Hospital.

Read before section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 22, 1935, at Rockford.

TABLE 2

Eye Experiment 2.

Time Start	Incandescent Lamp After 8 Minutes	Diathermy Low Voltage, 250 Milliamperes, Temps. Measured in Line of Current After 10 Minutes
Under lid.....94	107 S	104.7
In vitreous ...94.5	102.5 T	103.0
In orbit 96.5	99.5 O	102.4
Rectal 97.5	98.7 P	99.5
Surface 84.2	125.6	100.0

These experiments have been repeated by other workers and the results corroborated. In this connection, in particular, the studies of Moncrief, Coulter and Holmquest[3] are of special interest. While these investigations were conducted primarily with respect to the eye and the ear, this information proved of value when applied to the treatment of other organs.

Indications for Diathermy and Radiathermy.—The superiority of diathermy over other heating agents led to its extensive utilization in chronic conditions. Most clinicians feared to apply it in locked-in acute suppurations although such limitation has never been demonstrated to be scientifically or clinically sound. This contraindication, however, has been so thoroughly impressed upon those working in physical therapy that few have attempted to deviate from the rule. In the treatment of acute nasal accessory sinus disease, for example, diathermy is of definite benefit in relieving pain and retarding the progress of the infection as those who have had experience in this work will confirm. As regards radiathermy it may be used to combat diseases heretofore treated by diathermy, and in addition, all types of acute suppurations. These include abscesses, furuncles, carbuncles and phlegmons involving the skin or mucous membranes.

Advantages of short wave therapy over diathermy in ophthalmology and in otolaryngology can be attributed to the greater facility of application. There is obviated the difficulty of close electrode approximation to the part, a factor which with diathermy frequently contributes to great discomfort and occasionally to skin burns.

Those who are interested in the various phases of this subject, especially technic, should refer to a recent article by Kobak[4], of Chicago, who first suggested the term radiathermy as most appropriately descriptive of this newer therapeutic agent.

RADIATHERMY

Radiathermy differs from diathermy not only in physical properties but also in practical application. Radiathermy can be applied to the body as a whole or to any part of it. The frequency varies from 10-100 million times per second as compared to one to two million frequency of diathermy, and the wave lengths are, therefore 10 to 100 times shorter. The radio currents pass through the body without the need of good, firm, electrical contacts as are required with diathermy, and as far as deeper heat effects are concerned, these are enhanced when the electrodes are separated and spaced from the skin surface by insulating substances such as rubber, glass, and even air. Tissues are heated to different degrees according to their specific inductive capacity and not in proportion to their resistance as is the case when diathermy is used. Certain tissues therefore are heated by radiathermy which probably would not be by diathermy. It is these facts which render radiathermy so applicable to acute conditions about the head and neck.

Bordier[5], Pätzold[6], Kowarschik[7], Liebesny[8], Kobak[9], and Bierman[10], working in the more general fields of medicine, have laid down the principles governing the application of short waves. German workers have been incited to enthusiastic reports of their work, and in their efforts to explain all that they have learned, they have submitted many controversial explanations and claims. The chief of these are that short wave diathermy has:

1. A greater and more uniform penetration of heat into the body;
2. A specific selective thermal action;
3. A specific biologic action; and
4. A specific bacteriacidal action.

While these claims are not new they carry us far afield. In 1896 d'Arsonval with Charrin reported that the lethal action of diphtheria toxin could be attenuated by means of a high frequency current without a rise in the temperature of the medium. Mortimer and Osborne[11], having closely studied these claims, contend that they are controversial. Whatever will be the final outcome of this controversy, the following statements are accepted as true:

1. Short wave apparatus can produce

heat in the body or parts of the body when the current traverses the part.

2. Electrical contact such as used in ordinary diathermy is not only unnecessary but undesirable.

3. The heat produced can be localized by the proper selection and placing of electrodes.

4. With proper technique, treatments can be given with reasonable safety.

My own observations, based on an extensive clinical study, not only substantiate these statements but also establish that:

(a) Short wave diathermy is especially well suited for the therapeutic application of heat to the head and neck.

(b) It will materially shorten the treatment period as compared with the time required by other heating agents.

CASE REPORTS

To point out some of the results obtained by radiathermy, the following representative case reports are of interest:

Case 1. M. K., aged 20 years, received a blow to the right eye while playing basket ball. In addition to a typical "black" eye, there was a very marked swelling involving both lids accompanied by pain. The response to radiathermy was remarkably prompt. Within 24 hours the swelling was practically gone and the pronounced discoloration was distinctly improved within 48 hours.

Case 2. B. S., aged 21 years, had for 24 hours a painful swelling at the outer canthus of the right eye. I considered this a stye of the right upper lid which was not pointing. An application of radiathermy was followed in 12 hours by discharge of pus and complete relief of pain. Though the swelling was still visible all tenderness was absent.

Case 3. Mrs. R. S., aged 55 years, had a subacute irido-cyclitis with marked vitreous haziness and posterior descemetitis. Three weeks of treatment produced no change in visual acuity and only a slight difference in the gross appearance of the eye.

Case 4. J. D., colored, aged 56 years, absolute glaucoma. Left eye tension always around 80 Sch., this in spite of operations for the relief of tension. At the end of two weeks of radiathermy the tension had gradually diminished to 32.5 Sch., while the right eye with a tension averaging 30 remained the same.

Case 5. J. C., male, aged 38 years, had traumatic cataract in the left eye. A preliminary iridectomy performed April, 1934. Since then the eye was never free from injection. Frequently there was severe pain. Salicylates and heat were ordered. Condition was held under control with great difficulty until short wave therapy was started in February, 1935. After one week the eye became quiet and painless and has remained so excepting for a single remission which only lasted 12 hours.

Case 6. Mr. W., aged 70 years, refererd by Dr. H. G., diagnosis absolute glaucoma in the right eye. Patient could not keep lids open without effort for 1½ years on account of painful spasm and general discomfort of eyes. Within 48 hours after treatment with radiathermy patient reported marked relief.

Case 7. M. C., aged 6 years, following acute sinusitis developed a very large tender swelling of the deep cervical glands on the right side. Radiathermy was applied and 24 hours later the swelling was much more marked. Treatment was repeated, but this time was followed by subsidence, which became almost complete within seven days.

Case 8. V. H., aged 20 years, with a large submaxillary gland enlargement on the left side following acute upper respiratory infection, showed a marked increase in the swelling following the administration of radiathermy. Subsequent treatment was followed by prompt and marked improvement of the swelling and also of the attendant pain and discomfort.

Case 9. A. S., female child, aged 7 years, admitted with a diagnosis of cellulitis of the right submaxillary region that had been progressing under the usual treatment to a condition for which immediate operation was considered. The patient was gravely ill with constitutional symptoms which caused the operation to be delayed. Radiathermy was given over the affected part for ten minutes on two consecutive days, as a result of which the swelling practically disappeared and the constitutional symptoms abated. Six additional treatments were administered.

Case 10. P. A. I., a girl, aged 7 years, admitted to hospital with a diagnosis of cellulitis of left cheek complicated by severe orbital cellulitis. This little patient was extremely toxic, the hospital record showing a typical septic temperature curve varying from 103° to 104° F., and a pulse around 130. After the first treatment with radiathermy over the affected area for ten minutes the patient became toxic, but after the second seance she was so much improved as to sit up and play. After the fifth application the entire affection became localized. A simple buccal incision, to establish drainage, was made.

Case 11. G. A., male, aged 40 years, developed acute painful swelling of the tongue following a fall. The tongue kept getting larger and finally was permanently protruding from the mouth. As a similar patient seen several weeks before had died in spite of the usual surgical and medical aid, it was decided to try radiathermy.

Improvement was noticed after 48 hours and marked relief was effected within seven days.

Case 12. G. N., aged 11 years, following an acute

cold developed pain over the right side of the head and a swelling of the right eye. Temperature was of septic type up to 104° F. Examination revealed the lids of the right eye swollen shut, proptosis of about 1 cm., downward and outward displacement of the eye of about 0.5 cm. A mass could be felt between the eye and the floor of the right frontal sinus. Vision was 20/100. Roentgen examination revealed clouding of antrum, ethmoid and frontal sinuses. Weak adrenalin mixture was prescribed for nasal instillations and radiathermy applied over the right orbit and frontal sinus. Marked improvement was noted at the end of one week. Examination at the end of the second week showed absence of proptosis and displacement and marked improvement in the lid swelling. Vision was 20/25.

Case 13. J. D., negro male, aged 30 years, lacerated his upper lip playing on a harmonica. This soon became infected and swelled to at least six times its original size. High temperature and malaise accompanied the local condition. Treatment with radiathermy was followed by localization of infection in two days, and patient was discharged from the hospital at the end of a week generally well, but with some swelling still present.

Case 14. P. B., aged 38 years, entered the hospital with temperature of 101.2° F. and large swelling of the neck. Diagnosis of deep cervical abscess was made. After three daily treatments temperature was 99.2° F.; patient felt well and the abscess pointed and small incision made. Complete healing occurred in two weeks.

Comment on Clinical Studies.—As a result of my brief experience with radiathermy or short waves in ophthalmologic and otolaryngologic practice, I have made certain deductions:

1. The arrangement of electrodes in condenser field treatment renders possible a localized depth effect of heat, irrespective of the intervening structures, for example, the bones of the skull, since an intense effect can be produced in the bones themselves.

2. Short wave diathermy is a convenient method of deep heat application, especially in acute infections, and lends itself ideally to parts about the head and neck without some of the disadvantages of other heating agents including diathermy.

3. In all cases where other heat producing agents are indicated and therapeutically beneficial, radiathermy will bring about results in a shorter period of time.

4. In acute suppurations which eventually must be managed by incision and drainage, radiathermy will hasten the period when surgical treatment can be instituted.

5. A knowledge of correct application of radiathermy, its indications and limitations, are quite essential to safety and successful results.

CONCLUSIONS

1. Short wave diathermy is a deep heating agent suitable for therapeutic purposes.

2. Short wave diathermy lends itself ideally wherever heat is a desirable means of treatment in eye, ear, nose, and throat diseases.

3. While it is simple in application, caution must be exercised to avoid the dangers incident to any electrical procedure.

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DISCUSSION

Dr. T. C. Galloway, Evanston: Dr. Cottle is to be congratulated upon what I consider a very fair statement of a method which may be of great importance. To find a yardstick to measure such cases is difficult, and it is hard to estimate the improvement. I have watched my cases in the ward at Cook County Hospital, and it is my impression that this method of treatment marks an advance in treatment of acute, not well localized infections. The method, I think, compares very favorably with x-ray—I would not say which is better—but watching these cases the impression is rather definite that there is marked improvement over any other method of the application of heat or anything else, except x-ray. I think it does not produce any bad effects like the old diathermy. As Dr. Kobak said the effect is quite different from the old-fashioned method medical diathermy, and I have seen no bad effects from its use. Dr. Cottle is to be commended, and I hope he and Dr. Kobak carry this work further.

CAN MEDICINE SOLVE ITS OWN PROBLEMS?

BOWMAN C. CROWELL, M.D.
CHICAGO

The topic assigned to me for discussion this morning is *"Can Medicine Solve Its Own Problems?"* Not *"Will* Medicine Solve Its Own Problems?" or "Will Medicine *Be Allowed* to Solve Its Own Problems?" And so my task would seem to be that of the historian rather than that of the prophet. However, as the future is more important than the past, perhaps I may be allowed a few conjectures. Others on this morning's program are outlining the medical economic problems of today and the future, and, while it may seem mercenary, it is nevertheless true that the economic side has an all-important bearing on all phases of medical practice.

What are the problems of medicine? They are so numerous that the recital of a list of them would occupy more time than could be profitably spent on such a task. Fortunately they can be classified under a few headings as major problems and dealt with more or less en masse.

1. Deliver to the public the benefits of contemporaneous medical knowledge in the way of prevention, cure, and alleviation of illness or injury.
2. Add to the present storehouse of medical knowledge.
3. Secure to the practitioners of medicine adequate compensation.

The medical profession of today occupies a higher and more important place in the life of the community than it ever has in times past. Its progress has been continuous and the scope of its activities has been constantly enlarged. That is, the scope of activities of the profession as a whole has been enlarged, while the scope of activities of the individual practitioner has been more and more restricted through specialization. And every extension of the profession's activities or restriction of the individual practitioner's activities brings new problems to be solved. All of this progress and extension has been accomplished through the initiative and persistent efforts of the medical profession, often in the face of discouraging opposition from outside and inside its own ranks.

Read before Secretaries' Conference, Illinois State Medical Society, May 21, 1935, at Rockford.

Success in any field of endeavor is best secured through organization and cooperation. The medical profession of civilized countries has never been as well organized as it is today, and never has the necessity for cooperation been so great. Fortunately, the willingness to cooperate has never been more widespread in the medical profession than it is today, nor has there ever been a keener realization on the part of the members of the medical profession as a whole of what its problems are and of the importance of cooperative effort to retain the direction of the profession's activities within its own ranks.

By this time you will have surmised that I am taking an optimistic view of the medical situation of today, and that my answer to the question propounded in the title is to be in the affirmative. The history of medicine's progress, the character and ability of the majority of the members of the medical profession, and the present efficient organization all lead to that conclusion.

However, I am sure that a place on this morning's program was not given me in order that I might indulge solely in such generalities. A conference of men of thought and action naturally calls for the presentation of some definitely constructive thought. Let us then discuss briefly the problems of the medical profession that I enunciated at the beginning.

As a representative of the American College of Surgeons, and as one of its administrative officers, my remarks will naturally reflect the views of that organization, and especially so on the medical economic aspect. This latter has been expressed in a report that was issued in June, 1934, and which was elaborated in the inaugural address of our present president, Dr. Robert B. Greenough.

1. *Deliver to the Public the Benefits of Contemporaneous Medical Knowledge*

1. In order to accomplish this purpose there are certain requisites that merit mention in such a summary as I am attempting to present. One of the first of these is the provision of an adequate medical curriculum in the medical schools to be followed by suitable facilities for graduate and post-graduate instruction. Fortunately, no one has attempted to remove this function from the hands of the medical profession. While there are details of the medical curriculum that may require modification from time to time, on the

whole this requirement is well met in the medical colleges of this country. One item of importance may be emphasized at this point, and that is the necessity for increasing care in the selection of matriculates to the medical courses so as to assure to the profession a constant supply of ethical and competent practitioners who will maintain the high standing of the profession, and who will not allow the pressure of circumstances to lead them into unethical or unprofessional practices. You are all aware of the great contribution to American medical education made by the Council on Medical Education, Hospitals and Licensure, which is supplemented by the work of the Associated American Medical Colleges in relation to our medical educational facilities. There is still a large field open for the provision of adequate facilities for graduate and post-graduate medical instruction in this country, and I feel confident that our medical profession, through the universities and hospitals, can be relied upon to supply this need.

2. Greater uniformity in medical licensure in the different states is one of our profession's problems, and constant vigilance is here necessary in order to prevent legislatures from foisting upon the public the inefficient ministrations of the unscientific and uneducated cults. No point of attack upon the medical profession has more importance than this one, and no practitioner of medicine should hesitate to use all of his influence, individually and through organized channels, to protect the profession at this point.

3. The extent of medical science today has required the development of specialists. Herein lies a factor that has done much to complicate modern medical practice from both the technical professional and economic aspects. More volumes could be added to those already written concerning the complicating problems presented by the special subdivisions of medical practice. The necessity for the specialists is obvious. The definition of specialist and methods for recognition of the ethical and competent ones is receiving due attention, and we must hope that the various Boards that are contemplated and that have been formed will meet the requirements. Such recognition should be conferred by the medical profession itself and should be assiduously guarded from any attempt to secure anything that resembles political designation of specialists. The delivery of the services of the specialists to the public is one of our great problems. Group practice, organized clinics, and an increasing use of consultations are methods that have been devised to meet this need, and they have functioned with a greater or lesser degree of perfection. Today is not the time, nor this program the place to discuss the details of group practice, but it is pertinent to our subject to recognize the general principle that adequate preventive measures in medicine, accuracy of diagnosis, and effective advice as to treatment often require the services of more than one practitioner of medicine. The formation of group clinics is one of the means that have been devised to meet this end. Coordination and interpretation of the work of the specialists require the services of a medical adviser for the patient. Such a principle has led the American College of Surgeons to recommend special organization within staffs of hospitals for attention to cases of cancer, fractures and trauma, in order to give each and every patient the advantage of all that is known concerning their particular disabling condition by any and all of the special medical scientists.

4. We now come to the vexed problem of the desirable scope of governmental participation in health measures. It is generally conceded that protection of the public from epidemic diseases is largely a governmental function. Quarantine measures and protection of the purity of food and beverages are generally conceded to be necessary governmental public health measures. The administration of some biologic products and some specific medicaments for the prevention of disease should be *assured* by public health officials, but this does not prevent the possibility of a desirable cooperation with private practitioners in its accomplishment. The care of the indigent sick and injured is similarly a community responsibility and in general is recognized as such and is well performed. The medical and hospital care of the affluent presents no unusual community problem. It is with the class of persons of moderate means that the problem arises of how to deliver to them the benefits of contemporaneous medical knowledge. It is to this class especially that it has been proposed by the American College of Surgeons that the pre-payment insurance principle be applied in order to spread the expenses of serious illness in

small monthly payments over a number of years. This measure seems to be the most promising solution of the difficulties of this class of the population.

It was in response to a large number of requests for guidance from Fellows of our College —an international organization—and from hospitals, that our Board of Regents felt it incumbent upon itself to formulate the principles that should be followed in the practice of any prepayment plan for medical or hospital service. The principles that were enunciated were based on the code of ethics of the medical profession and were designed to protect the interests of the whole population and of the medical profession and hospitals. No plan or method of pre-payment was suggested. Rather it was recognized that in countries composed of so many diverse elements as those which make up the United States and Canada, with the population here crowded in great industrial centers, there scattered in agricultural districts, and in other places more widely distributed still over the practically unsettled and frontier districts of the North and of the West, it is not to be expected that any single national plan for providing medical or surgical service to the whole community should prove everywhere to be satisfactory. The problem is essentially a local one, to be studied and solved by the members of the individual communities, and by trial and error, if by no other means. It was emphasized that in these experiments it is of vital importance that the medical profession should take the lead.

The House of Delegates of the American Medical Association has instructed its administrative officers to study such plans and to present the results of their studies for guidance in future action.

The American College of Surgeons has taken the position that pre-payment plans of this nature should be free from the intervention of commercial organizations operating for profit, in order that the maximum amount of the fund may be available for the payment of the medical, surgical and hospital expense which is to be supplied.

A beginning of this cooperative effort on the part of hospitals in many communities has been made, and some favorable reports are being received. It is of great importance that pre-payment plans of this nature be not restricted to individual hospitals or smaller groups. They should be a cooperative community organization in order that all unfair competition may be avoided. It is further emphasied that the quality of service supplied to the community should be recognized both by the public and the medical profession as the first and most important consideration in every plan for providing more efficient service and making it available to all classes of the population.

It is difficult for me to refer to these subjects without entering into more detail concerning them than is warranted by the topic that was assigned to me, but they must be at least referred to in order to show that the medical profession realizes what its problems are and is in a position to solve them.

2. Let me now pass on to the second major problem, namely, that of *adding to the present storehouse of medical knowledge.* While all branches of science are interdependent, and a discovery in one branch may well have a marked influence on some related branch of science, the medical man can be relied upon to utilize for the advantage of the patient the discoveries in other branches of science. We need only mention as examples the work of the non-medical chemist and the physicist who have given us first antisepsis, then asepsis, our different uses of radium and x-rays, electrical treatments, artificial heliotherapy, and so forth.

Additions to our storehouse of knowledge come from that magic source known as research. This word immediately brings to the mind a picture of the laboratory and its so-called pure scientist, also of the medical school with its scientists and pseudoscientists, but I like also to grasp every opportunity of emphasizing the library as a research center and especially the record library of the hospital and of the doctor's office. A former colleague of mine used to refer to the record library as the cemetery of buried facts. Let us stimulate in all ways possible the study of records of groups of related cases in order that we may benefit from that greatest of all teachers—experience. The practitioners are becoming more conscious of the value of good records and of the value of their study in groups, but much still remains to be done to bring the forgotten facts into the foreground of memory.

While this subject of research is one of the problems of medicine it is not one that is in

danger of being taken from us by ordinary means and so we need not discuss it further this morning.

3. *To secure to the medical practitioner adequate compensation for his work.* While this is one of medicine's problems it does not remain so much under her control as does for example the subject of research.

A number of influences have sprung up which tend to interfere with the income of the private practitioner. While I cannot attempt to solve the problems that are raised by these influences, I can at least enumerate some of them and express the belief that the difficulties raised are not insuperable and that the necessary adjustments will be made.

1. There is the inroad that is being made by the endowed teaching clinic. Here is seems to be a truism that the activities of these clinics should be restricted as much as possible to truly charity cases and to only such cases as are essential to give the students the necessary material for study.

2. A second inroad is the abuse of free clinics by those who are capable of paying for services rendered. These abuses of hospital charity must be prevented as such undeserved charity is frequently given at the expense of the truly destitute. On the same basis the enjoyment of moderate-means accommodations and reduced fees in hospitals should be rigidly restricted to those of limited resources whose finances do not permit them to obtain the needed care in private practice.

3. The question of payment of physicians for the care of indigent cases in hospitals is one requiring further study. There are many instances in which the experience and reputation or teaching opportunities do not repay for services rendered, and medical service is as much entitled to community payment as is legal or other service.

I have already referred to the necessity of public health organizations cooperating with the private practitioners as much as possible in the administration of protective vaccines, sera, and so forth. The expansion of the activities of public health departments into the clinical field should be restricted to demonstration clinics for educational purposes, and to such other activities as can be made available to the community only by the use of public funds.

In conclusion let me say that such a group as I am addressing this morning did not need me to come here to tell them that medicine can solve its own problems, but it has been a pleasure for me to indicate some of the ways in which I believe some of the problems can be solved. The secret is organization, education, cooperation, and persistence.

DISCUSSION

John R. Neal, Springfield: Dr. Crowell has presented a splendid paper. The committee who extended to Dr. Crowell an invitation to appear on the program might have expressed the title of his address much more appropriately, it seems to me, by changing the first word from "can" to "will." Using the word "can" as it appears in the title expresses doubt and skepticism as to the capacity and ability of the medical profession to solve the multiplicity of problems which confronts it. If a substantial body of useful citizens endowed with the native talent and the training which characterize physicians finds itself in a world too complicated and complex to permit the approach of problems peculiar to the profession with hope and even with confidence of reasonably satisfactory solution, the future must indeed be dark not only for the medical profession but for the democratic government itself. To me there is no doubt and no skepticism whatever as to whether or not medicine can solve its problems. The question is whether medicine *will* solve its problems.

Dr. Crowell's discussion of medical economics was particularly interesting. This subject strikes at the very roots of every present-day medical problem of more than passing importance. No one, I believe, will dispute the need or the desirability of extending medical practice so that it may reach more adequately a greater proportion of the population. No one will deny that many people at the present time are unable to meet the cost of medical service which their health interests demand. How best to make essential medical care more universally available without incurring sociological and economic disadvantages that far outweigh in significance and importance the immediate health protective gains anticipated is a matter of serious debate.

The idea that modern medicine has developed into a sort of scientific magic which can almost miraculously cure and prevent illness is rapidly crystalizing in the popular mind under the influence of propaganda for socializinng medical practice. Along with this conception is shaping itself a deep popular suspicion that the organized medical profession is holding out on the public; that it wishes to guard from general knowledge for its own infinite advantage the magic secrets of the healing art. Thus has come the agitation for compulsory health insurance schemes. To students of human nature and of sociological history it must be clear that only disappointment awaits the adoption of compulsory health insurance in so far as any profound advantage to public health is concerned.

It must not be forgotten that medical care can be overdone as well as under-done. Any system that makes

medical service free to people will encourage that danger. England has experienced under the health insurance schemes of that country a vast increase in various forms of illness, real or imaginary, with no measurable improvement in the public health. Can such a state of affairs be regarded as a benefit to the public morale or as a national asset?

The practice of scientific medicine can go no faster than the advancement in public intelligence and appreciation of what the well trained physician has to offer. This Dr. Crowell very properly emphasized when he pointed out that any scheme of extending medical practice must be preceded by an educational program that prepares the soil for ethical medical service. It would seem that public health departments and voluntary health agencies have carried forward health educational programs just as fast as public assimilation will permit. Many studies have shown that local facilities for providing appropriate medical service are readily developed in every community where a popular demand is aroused for such things as inoculation against diphtheria, vaccination against smallpox, the removal of diseased tonsils and the correction of dental defects. This experience suggests that the problem of extending medical care, particularly in the preventive field, will take care of itself very largely wherever a genuine public appreciation of scientific medicine is created.

Compulsory health insurance schemes would necessarily involve political participation in a government like ours on the one hand and large sums of money on the other. This would lead inevitably to control of such a system by elected officials. Even though the letter of the law were satisfactory to the medical profession the administration would certainly cater to the votes rather than to the doctors. This has been the invariable history of social reform legislation in this country. Thus the physician would be subject to bureaucratic dictation in respect to fees as well as to practice in spite of anything that might be provided by the law.

To one who has observed the trend in legislative matters carefully during recent years the agitation for compulsory health insurance appears to be only a symptom or at least a feature of much deeper and much more significant social currents. A distinct shift away from the fundamental principles of the traditional American form of government is visible to every student of political affairs. Carried away on a wave of ill considered sentiment great masses of the people appear to be actually eager to abdicate their responsibility of free citizenship in the hope that some economic advantage will come from a concentration of power in the executive branch of government. This is seen in the clamor for fantastic schemes of old age pensions, for impracticable regimentation of industry and for various other forms of insurance and doles that must lead inevitably to strict governmental control over every activity of life as well as to severe tax burdens.

When a radio demagogue who was denied the commercial facilities of national hook-up systems is able through popular contributions to build up a net-work of his own by appealing to the prejudices and hatreds of the masses, and who can provoke the writing of more than a million letters by a single broadcast, there can be no doubt of the imminence of political changes of the deepest significance to people who believe in freedom. When the same man draws up a platform for his followers in which freedom of speech and democratic government are not so much as mentioned, it requires no profound scholar to detect a strong trend toward fascism and regimentation. For the medical profession to ally itself with compulsory health insurance schemes is to add its strength to this movement which must be combated with all the vigor at the command of intelligent citizens if we are to escape the tyranny that has already come to pass in certain European nations.

Three bills now pending before the Illinois general assembly bear particularly upon the medical problems and upon the political situation. One would set up a compulsory health insurance scheme that would concentrate administrative control in the Governor through an appointive commission. The vast sums of money which would accrue under a system of taxation provided for in the bill would be at the disposal of the commission, no member of which would necessarily be a physician. This commission would have broad powers in respect to all activities relating to medical practice among people of incomes up to $60 per week.

Another of the bills would permit any corporation to practice medicine while the third would legalize the operation of non-profit hospitals by corporations of a charitable character. Since the government has direct control over corporations the power of regimenting medical service by political officeholders would be hastened by these measures.

All three of these measures, as well as many others before the legislature, indicate the strong trend away from individualism and toward the concentration of political power by any group which might be able to grasp the economic reigns.

On the other hand a few medical societies here and there have developed what appear to be thoroughly sound and workable systems of meeting the need for extending medical service to the lower income classes. The system in Fulton County, Georgia, is a good illustration. With a premium rate of $1.50 per month per person the county medical society undertakes to provide medical service to families which voluntarily join the Medical Service Bureau, as the association is called. On the first of April, 1935, this association had been in operation for one year. At that time the membership was well above 400 and the organizing was self-sustaining. Employers, who were skeptical at first, had begun to take interest, according to a letter from the secretary. There is every evidence that the system will fulfil the needs for medical service among the low income classes in the County in a dignified way that preserves the self respect of both patient and physician. There is already plenty of laws under which the indigent can be provided with medical care.

Legislative trends show clearly that physicians may expect to have little to say in the control of compulsory insurance schemes created through legislative act either by Congress or by the State assembly. The experiences in Fulton County, Georgia, shows that local medical

societies can develop practicable systems for extending medical care so as to meet reasonably the requirements of low income groups. Whether the government will step in with a political spoils system of medical regimentation or whether the medical profession handles its own affairs will depend upon the initiative of organized medicine and upon the interest of individual physicians in their local societies and in governmental affairs.

A long time ago the son of a rich man discovered to his sorrow that husks upon which swine are wont to feed become the monotonous diet of those who accept too lightly the privileges which have been acquired through great effort by preceding generations. Under prevailing political conditions the medical profession may find itself in the shoes of the prodigal son if it sits idly on the side lines while politicians and propagandists mix the poisons of fascism. Compulsory health insurance is but one phase of the political trend which strikes at the very foundation of liberal government in America.

Robert L. Parker (Secretary, Iowa State Medical Society): Madam Chairman and Members of the Secretaries' Conference: At this time may I express on behalf of the Iowa State Medical Society the joy we had at your President and Secretary attending our meeting at Davenport a few days ago. I hope by sitting in this conference I may be able to take back to Iowa a very valuable lesson which we may incorporate in the activities of our society in which we have eighty-two per cent of our eligible physicians as members of our State Society. In our last annual session, we had thirty-three per cent of our membership registered in attendance.

I think in Iowa, because of our high percentage of membership, we have already built up the biggest fence to prevent so-called state medicine. State medicine can never enter into a one hundred per cent organized county medical society. The county medical society is the unit upon which all organized medicine depends and it is in that unit where state medicine will have its start, if it gets a start at all. So I am a strong believer in local option in more ways than one. The county society has the final word as to whether state medicine should enter into that county or not. In an agricultural state such as is Iowa, we don't have the problems you have in some of your industrial centers, but the same perfected organization in industrial centers will prevent state medicine.

L. O. Frech (Decatur): Dr. Neal referred to a medical service bureau in Georgia, which brought to my mind the fact that Illinois is not as yet overburdened with any such plans. However, I want to mention the fact that our society in Macon County was the initiator of the medical relief plan in Illinois. I do not say that in a boasting manner. The Macon Society again, I believe, is the initiator of the medical service plan in Illinois.

The bureau in Macon County has already been set up and is now functioning, but it is too new to give you any definite details as to what the function will be. It has been in operation only about three or four days, but we have been working on the plans since last January, when the society adopted a resolution to perfect a service bureau. The name of the society is the Medical-Dental Service Bureau. To give you some idea, it is an outside organization, set up by physicians and dentists. The membership is composed only of members of the two societies who are in good standing in their respective societies. It is controlled by a board of directors who are elected by the Macon County Medical Society and the Macon-Moultrie Dental Society, the medical society having three directors and the dental society having two.

This organization is set up for the following purposes: collections and ratings. I mention those first due to the fact the bureau had to be financed. It had to be organized first and financed and our plan of financing is accomplished and carried out through the collection of accounts, entailing very little if any expense to the members of the bureau in a direct way. A second function of the bureau is adjusted compensation, credit extension, also industrial contacts. We plan in the future to extend this to include health savings, which will be through the banks, also to include financing of medical accounts.

We appreciate that all of this is a big proposition, something probably far into the future but something to look to and work toward. The committees are enthusiastic. It is not a compulsory membership; it is voluntary. I shall state frankly our men were very skeptical at the beginning and some of them still are. There are still many of our men who cannot make up their minds whether it is going to be a benefit to them and their patients, but the committee believes that time will prove it will be a benefit both to the physician and his patient.

Dr. Crowell (closing the discussion): Dr. Neal has referred to compulsory health insurance. I would like to say that I have sufficient faith in real Americanism and American ideals to believe we will not have the compulsory health insurance, but that it is very necessary that such men as constitute the audience here this morning and other similar groups throughout the country demonstrate their true Americanism in order to prevent the disaster which universal compulsory health insurance would bring about.

THE POOR GALL BLADDER RISK

*Edward S. Murphy, M.D.

DIXON, ILLINOIS

This paper takes into consideration only the management of some of our difficult gall bladder problems, which are chronic and of years standing, and which are subject to acute exacerbations. Many of these are medical problems always, since they at no time become favorable surgical risks.

Preparation of Patients for Surgical Manage-

*Deceased.

Paper presented before Section on Surgery, Eighty-fifth Annual Meeting, Rockford, May 22, 1935, by Dr. David Murphy.

ment.—Obese patients are reduced in weight if possible, but their diets not too strict, and are always given a sufficient protein and carbohydrate maintenance, probably some thyroid.

Emaciated and undernourished patients, as though just recovering from jaundice—great effort is made to give them above the maintenance protein, and carbohydrate, if they will tolerate it. In these patients, we have observed that the high grade secondary anemias and the leukopenias with a very low polly index, that liver extract parenterally for a short time is of value in returning the counts to normal. Some calomel in doses of 1/10 t. i. d. and sodium phosphate is given to these patients if they will tolerate it. Calcium gluconate with some form of vitamin A is given to make the coagulation time more satisfactory.

Frequent titration of blood chemistry, especially of the N. P. N. and sugar is done. We hesitate to operate on a patient until the blood sugar is at least up to 80 mg. per 100 cc. blood. We find if it is lower than 80, in the 60's, they are bad risks because of the pancreatic complications. Such a patient is given, as a rule, deep x-ray therapy, 300 R. units at intervals of three weeks over the pancreas. Two to three such doses are given. This, plus high carbohydrate diet usually makes them fairly satisfactory risks. A patient with a high N. P. N. is an undesirable risk. In such a case the protein is not restricted and we find that the N. P. N. comes down very satisfactorily with an adequate protein maintenance. If the chlorides are low, we give Ringer's either rectally or orally.

Surgical Technique.—A splanchnic anesthetic reinforced by anterior local, plus enough nitrous oxide to produce unconsciousness. These patients are very relaxed and remain in good condition relative to the anesthetic. Usually half nitrous oxide and oxygen with 5% carbon dioxide is sufficient to maintain them so their lungs are always well blown out at all times.

An effort is made to locate the gall bladder at the time of diagnosis by x-ray with the aid of dye. In a broad chested individual with the gall bladder at the costal margin, a transverse incision is made as the method of Mayo, Robinson and Karl Meyer. In the high lying gall bladder and high chested type, the Bevan type of vertical incision is done.

The gall bladder is dissected from the liver leaving some mesentery, if possible, to cover the liver bed. The ducts are isolated and ligated by double O chromisized gut. The cystic artery is ligated with a light weight double O iodized gut. The gall bladder bed is sutured, if possible, by a double O iodized continuous suture. Most of these patients are closed tight without any drainage. Sometimes, a signal drain is put into Morrison's pouch and brought out through the right flank. More rarely, a double tube is sutured with the internal tube directly to the cystic duct stump, which is aspirated at frequent intervals. These invariably drain bile.

If there is a common duct obstruction which cannot be satisfactorily relieved, a "T" tube is inserted draining through the right flank.

If the pancreatic pathology overshadows that of liver and gall bladder, the gall bladder is then not removed but drained at the fundus, which we think is of very definite value, in that the pancreatitis is arrested sooner and the liver pathology is relieved without sacrifice of the gall bladder. These patients, we believe, do not do well if a rather benign gall bladder is removed in the presence of definite pancreatic pathology, which is foretold in a low blood sugar—because we are inflicting a surgical cholecystectomy—which has not been preceded by a physiologic one. That is, in a chronic cholecystitis, the gall bladder has been long out of function, and the biliary system has already made physiologic adjustments. All these patients are followed by deep x-ray therapy and usually preceded by it.

In general, a cholecystectomy is done when the gall bladder seems to be the primary cause and especially when it contains stones. I believe that we are more conservative about sending our gall bladder patients to surgery than we were in the past.

DISCUSSION

Dr. Lathan A. Crandall, Jr., Chicago: As one who is primarily a physiologist, I do not feel competent to discuss the surgical aspects of this paper, but the physiological indications are extremely interesting. The point which he has emphasized concerning the part played by the liver or the importance of liver function cannot, I am sure, be emphasized too much. We hear a great deal about the preparation of these patients with high carbohydrate diets. I would like to say just a word about the physiological background of such management.

In discussing the use of high carbohydrate diets, perhaps it is not sufficiently emphasized that liver function as far as we know is improved in the presence

of large deposits of glycogen. The rationale of the high carbohydrate diet I believe depends on that. It has been demonstrated many times that the liver which contains a high percentage of glycogen will detoxify better and perform its function better than the liver which contains little or no glycogen, even though there may be but a slight amount of pathologic change which is actually visible in the organ. If these patients are told to take orally a reasonably large amount of dextrose and starches and are able to assimilate them, it does not seem that the administration of any other form of glucose is necessary. Intravenous glucose would seem necessary only when the patient is not able to assimilate carbohydrate given orally. One can give larger amounts of carbohydrate orally than intravenously and presumably raise the liver glycogen higher by oral administration than by intravenous.

I am interested in the question raised concerning the low blood sugar in these patients and its significance for pancreatic involvement. I would like to ask Dr. Murphy in what respect low blood sugar indicates involvement of the pancreas. We ordinarily think of pancreatic involvement, if it goes so far as to involve the process of dextrose metabolism, as giving rise to a higher blood sugar. I wonder if a low blood sugar might be an expression of liver damage rather than of pancreatic involvement. In the presence of liver damage with low glycogen we do find commonly a low blood sugar which might account for this finding in these cases.

In this connection I would like to ask a question about deep x-ray therapy and its rationale. In thinking the matter over before coming here it was not clear in my mind just what deep x-ray therapy would be expected to accomplish. We ordinarily think of x-ray as depressive, as producing a decrease in function rather than an increase. The only instance that I know of where stimulation is attributed to the x-rays, and that is still very much in question, is in the repair of epithelial tissue. In using x-ray over a solitary gland, like the pancreas, one ordinarily finds no evidence of stimulation.

It is interesting to recall to you an article which many of you have no doubt seen, from Healy and his associates which appeared in *Surgery, Gynecology and Obstetrics*. They recently have studied similar cases at the Cook County Hospital, and have used the bleeding time after venous stasis. One of the problems met with in these cases is that they tend to bleed. The origin of the bleeding is obscure. Coagulation time measurements have been of little or no value. These workers have found that if one constricts the arm with an ordinary blood pressure cuff and raises the cuff pressure so that there is a venous congestion, and then determines the bleeding time, the bleeding time is increased in many cases of liver disease. On that basis they have evaluated somewhat the tendency of the patient to bleed postoperatively. They have further reported that the administration of large doses of viosterol, 30 drops three times a day, will decrease the bleeding time and will improve the condition of the patient to such an extent that the postoperative course is improved.

I would like to ask Dr. Murphy in that connection whether the vitamin A used was in the form of cod liver oil or one of the vitamin preparations containing vitamin D as well, since perhaps vitamin D has even more influence over coagulation than vitamin A.

Dr. John A. Wolfer, Chicago: It was my privilege to know Dr. Edward S. Murphy very well; I respected his ability and I wish to pay tribute to him as a man and skillful surgeon.

One thing I should like to emphasize is the diet of the so-called fat individual. I think many times in trying to reduce the fat individual so as to make of him a better surgical risk that we are placing him in far worse condition than when he was fat. The fat individual is not one who is over nourished. He is one who needs nourishment of a correct type. When we place a fat individual on the average reducing diet and expect him to tolerate an operation, we are stepping on our toes and walking backward. The obese patient needs scientific study and careful medical management to bring about a proper nutritional status.

The more I see of liver shock the more I am convinced that there is some unknown factor at work, because we see liver shock taking place in individuals who have a grossly normal liver. I recently had such an experience in a man who had a common duct stone with obstruction and an acute cholecystitis. His acute symptoms were allowed to subside. After he had been under observation and, what we considered, the proper management-high glucose intake, thirty drops of viosterol three times daily and calcium gluconate by mouth, he was in, what we thought, excellent condition to withstand the operation. The stone in the common duct and the gallbladder were removed and in a few hours after the operation he developed typical liver shock. It was rather a surprise to me since his liver looked normal at the time of operation. Liver shock is associated with low blood pressure. The first symptom is a fall in the blood pressure and an increase in the pulse rate. I do not know what the blood sugar is in these patients when they are approaching liver shock, whether it is low or normal. The administration of salt solution intravenously does not improve them very much. Glucose solution does not check the process. Blood transfusion apparently improves the condition for a short period of time. Keith, Huffman, and others have reported observations upon the crystalloid and colloid matter in the blood as it pertains to the retention of intravascular fluids. They believe that in shock there may be an increased permeability of the vessel walls to fluids with high crystalloid and low colloid content, therefore, introducing salt or sugar solution into the circulation will not maintain an intravascular fluid volume. They recommend that six per cent. gum acacia solution be given intravenously to increase the colloid content of the blood. My patient was given six hundred cubic centimeters of a six per cent. gum acacia solution intravenously, his blood pressure rose and was maintained and recovery ensued. It is difficult to decide an issue upon the observations of one case since

we know that occasionally a case recovers with ordinary treatment while at other times a fatal outcome is the result. We are apt to attribute success to a procedure used at the time when nature is coming to the foreground to help us out. I believe in this matter of liver shock we are still in the dark. The matter of prevention is indicated in the plan Dr. Crandall brought out. It has been suggested by Dr. Ivy and his associates that sugar, calcium, and viosterol are the three agents that help most.

One other point in the matter of jaundice. It has been our observation that when a patient is jaundiced and at the same time has no albuminuria that a high or moderately high protein diet is not advantageous. In other words, it has been proven experimentally that you can bring about a fatal issue by a high nitrogenous intake. From a clinical point of view we put these patients on what we call a basal nitrogenous, high carbohydrate diet.

Dr. George deTarnowsky, Chicago: First of all I want to emphasize the fact that the late Dr. Murphy realized the close interrelation of the hepatic or biliary duct with the pancreas. He made the statement that in all cases where clinically he felt the pancreas was the chief organ involved he did not do a cholecystectomy; he did a cholecystotomy. In February of this year I read a paper before the Chicago Surgical Society on acute pancreatitis. After the meeting Dr. E. S. Murphy came to me and said that he had been following along the lines I indicated in my paper. There is no question but where the pancreas is involved we make a mistake by doing a cholecystectomy, because the only way we can treat the pancreatitis is by draining the gallbladder.

I am not familiar with the rationale of deep x-ray therapy following these operations. I hope Dr. Murphy will be able to explain why he and his father used it. I have never used it myself. I wonder what clinical evidence they have that such therapy is of benefit to the patient.

Dr. Lathan A. Crandall, Jr., Chicago: Dr. Wolfer touched on a point of much interest to me. It seems to be quite clear that one of the important functions of the liver is to regulate the amount of blood that is circulating through the vessels. There is no question but we can have stasis in the capillaries or smaller vessels to such an extent that the circulating blood volume is greatly reduced. The regulation of the amount of blood that is actually circulating is largely carried out by the liver. The liver is probably more important in this respect than any other organ. It occurs to me that it is quite possible in these cases of liver shock that some interference with the nerve supply to the liver and some reflex effect from working in that region might very well interfere with the ability of the liver vessels to regulate the circulating volume. It might so affect them that the liver would take up a large amount of blood and store it away in the capillaries and smaller vessels. We know the liver can store away large amounts of blood and shut it out of circulation. This might explain why, in some of these patients, there is a low blood pressure that can only be brought back to normal by intravenous injection of whole blood or acacia solutions but not by saline alone.

Dr. W. L. Waner, Evanston: Last year before this Section at Springfield I read a paper on "Spinal Anesthesia" and reported upon our treatment of the poor risk gall-bladder case under spinal anesthesia concomitant with intravenous glucose. I reported 25 cases at the Springfield meeting of poor risk gall-bladder cases, over a period of three and one-half years, successfully operated upon. We have extended this series now, under spinal anesthesia, to 29 without a fatality, exclusive of malignancy. We use intravenous glucose, if the patient is a poor risk, before operation and during operation in practically all cases. In high abdominal surgical cases we do not like to have the blood pressure under spinal anesthesia drop below the patient's normal. In robust individuals and in lower abdominal surgery a drop in blood pressure of thirty points does not mean very much, but in gall-bladder cases we think it does. Three weeks ago we operated upon a woman of 69, for gall-bladder disease. She had a blood pressure of 200/100, and a badly involved myocardium. We had her digitalized before operation. On three previous occasions she had been decompensated during recent years. Under spinal anesthesia and intravenous glucose she was successfuly operated upon. We were able to keep the blood pressure up to an average of 185 mg. of Hg pressure. We continued the intravenous glucose for two days and she recovered without any complications or difficulty.

I would like to emphasize just one thing about spinal anesthesia in regard to gall-bladder surgery. Spinal anesthesia does not interfere with the normal body metabolic processes. Under ether anesthesia, and to a lesser extent the gases, the blood sugar and blood urea begin climbing immediately after the anesthesia is begun, and acidosis develops depending upon the length of the anesthesia. Under general anesthesia, acidosis, blood urea and blood sugar climb rapidly, causing a condition of intracellular acidosis. This, combined with high blood urea nitrogen, prevents the body cells from accumulating sugar and oxygen. During spinal anesthesia blood sugar is mobilized for direct food supply of the body cells and there is but a small amount of blood urea accumlating during the first six hours after operation. I have often wondered if "liver shock" and "liver deaths" might not be on the basis of the disturbed metabolism of sugar and urea just mentioned.

Dr. C. Paul White, Kewanee: I would like to ask Dr. Murphy what he thinks about the type of operation that is used in these poor gallbladder risks, and how far that might be responsible for some of the bad effects afterwards. Some time ago nearly everyone was removing most of the gallbladders. I understand in several clinics, especially in Europe, they have become more conservative in the selection of the type of case in which they do cholecystectomy. I listened to what Dr. Waner had to say; I head his paper last year. I have used spinal anesthesia in gallbladder cases by preference in most cases. In the last year I had two cases that went into this very typical shock, al-

though they had spinal anesthesia. In one we had used every precaution that we thought could be used preoperatively and still that patient went into shock and died rather promptly. The thing that I am expressly interested in, and I hope that someone will bring it out, is what is the relation of the operation itself to the liver shock that we see.

Dr. W. J. Carter, Mattoon: There have been so many questions asked that I thought I would offer my bit in the way of an answer. For the last three or four years I have been using a transverse incision for all gallbladder operations. I find that it is very much easier to handle the situation in any condition relative to the gallbladder. If the appendix is involved you cannot take care of it as well as the gallbladder alone. I make an incision over the gallbladder, extending from the midline well down to the side. The table is elevated posterior to the gallbladder thus placing the gallbladder into a position where it can be handled. You can see everything that has to be taken care of in almost every case except the very fat individual. Even in that case it is much easier to handle and it shortens your operation probably fifty per cent. The drain is very easy to place. The anesthetic I use is sodium amytal with probably a little ether.

Dr. Frank Otis, Moline: I think we should consider trauma to the liver in the light of the recently reported experimental work where a portion of the liver is left free in the abdomen. If the peripheral portion is left free in the abdomen death may not occur. but if it is the central portions death is certain from the development of a bacterial toxemia. Probably some traumatic change in the circulation may have something to do with isolating a central portion to produce the shock, like a disconnected central portion produces the shock.

Dr. David Murphy, Dixon (closing): About the effect of x-ray therapy, Doctor Murphy Senior's thought was this. In these patients with a pancreatitis, the eyelet tissue of the pancreas is stimulated to secrete more insulin, especially after surgery; the pancreas would secrete an over-dose of insulin, thus contributing to the patient's shock. Accordingly, as an experimental problem, patients of this type were given x-ray therapy. We observed that the blood sugar on these patients returned to a near normal. They, of course, were given high carbohydrate diets. We are not thoroughly convinced that this x-ray therapy is a necessary adjunct to the carbohydrate diet, but we regarded it as worth while and shall continue it until we have enough cases to evaluate our results.

We are thoroughly in accord with the glycogen content of the liver and the point Dr. Crandall brought out that a high carbohydrate diet is certainly necessary. About vitamin A, we give that in viosterol because they cannot tolerate fats. They are given viosterol and nothing else. We have not tried haliver oil.

Before I was associated with father he did all of these cases under spinal. One patient nearly died and he went back to sphlanchnic which he had used fifteen years before. I do not feel competent to answer the question about spinal anesthesia.

About liver shock, he said, "I believe Crile is right." He believed there was a stimulation of the tail of the pancreas. I know that part of this paper is the result of his discussion with you, Dr. deTarnowsky, about draining the gallbladder to relieve chronic pancreatitis. He thought it was a great error to remove the gallbladder in the presence of an acute pancreatitis.

The type of surgery used, as Dr. White says, is important. It is mostly a transverse incision but he still used a right rectus incision because in a narrow-chested individual the transverse incision is hard to work with and you have to pull on the liver more than in the other.

IS MEDICAL RELIEF A FORERUNNER OF STATE MEDICINE?

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The question in the title of this paper can be answered by the statement that organized medicine in Illinois is responsible for the operation of the Medical Relief Program and the policies under which it operates.

Lest, despite this statement, the purpose of this paper because of its title be misunderstood, let it be known here and now that the Medical and Dental Relief Department of the Illinois Emergency Relief Commission, as at present constituted, has not the slightest desire nor intention of pointing medical relief in the direction of state medicine, even if it had the power to do so, which it hasn't.

Nor is there the slightest danger that emergency medical relief will ever spell "State Medicine" so long as the medical profession itself continues as it does now, to provide not only counsel and advice but actually some considerable degree of supervision and administration to the program.

Finally, the present form of medical relief provides for the profession a proving ground, an experimental laboratory, in which may be learned by the ancient method of trial and error what are the best and the safest ways of providing medical care on a wholesale basis for the indigent unemployed.

Thus is provided for Illinois an alliance between the social engineer and the medical pro-

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fession, two groups that for years have been rather far apart.

For years physicians have been blaming social workers for most of their economic ills, real and imaginery. There can be no doubt but that some of this blame is justified, but certainly not all of it. Closely analyzed, it is a question whether even that part of the blame which seems apparently justified doesn't at times boomerang back upon the physician.

For what effort has the profession ever made to educate the social worker to understand the physician's viewpoint? Frankly, the average physician is admittedly a poor salesman, which, of course, is quite understandable by reason of his ethical training. However, instead of blaming the approach of state medicine upon social workers why not try to induce social workers to understand the aims and ideals of modern medicine? Medicine hardly ever makes the effort—but instead, the profession right merrily berates social service upon every possible opportunity for working at cross purposes although both professions should recognize the fact that their ultimate aim, good medical service for all at a price they can pay, but with proper compensation for the physician, is exactly the same. Your only real difference of opinion lies not in the aim but in the method of its application.

Had the medical profession anticipated the development of state medicine sufficiently far in advance instead of leaving it to the evidently more energetic and interested lay public, the profession would not have been so inclined to attack the social service profession for usurping its prerogatives. Perhaps it still is not too late.

Social workers are often accused of fostering clinics and making "clinic hounds" out of persons who should go to private physicians. Rarely do social workers start clinics—most clinics, it must be admitted, are started by physicians and hospitals. However, once established, of course, the tendency of the relief worker is to use them on behalf of people unable to pay even if it is, as frequently happens, to the detriment of private medical practice.

The attitude of the profession towards the social worker is very fairly and honestly reflected in a statement of Dr. Charles H. Parkes, under the title "The Clinic Habit" in the April issue of the ILLINOIS MEDICAL JOURNAL, wherein he says:

"With the social worker behind the steering-wheel of the Emergency Relief Administration, as now pertains in Chicago, and probably all over the country, private practice is being driven to the clinics in ever-increasing numbers, corresponding to the ever-increasing numbers of social workers."

Why is this true of Chicago when it is not true in down state Illinois? Because in down state Illinois there are no clinics. Who makes the clinics in Chicago possible and who started them? Physicians. Even in Chicago where the clinics are to be found, in February alone 1,800 of Chicago's 2,500 physicians made 46,000 home visits on indigent patients for which they were paid over $69,000, an average of $38 each. That clinic care when it does exist, particularly during hard times, actually creates a clinic habit, is not denied; that this is bad for private practice is also not denied, but that the social worker is wholly at fault is denied. The social worker, for lack of other free service, is compelled to use the clinics for her charges. Where clinics do not exist, however, she naturally relies upon the private practitioner. Control your clinics and your "clinic habit" problem controls itself. Most patients abhor clinics. If they had any choice and sufficient income to pay a fair fee, they'd gladly pay it. The fact that there are people who can pay and still go to clinics doesn't prove that everybody wishes to do the same.

The Relief Commission did not start any clinics in the State of Illinois. It did, however, withdraw its support from one right here in Rockford which was organized before relief began. But the Commission is obliged to use the public clinics when they do exist. If physicians do not like clinics it is the easiest thing in the world for the profession to do away with them or to make out of them what they want because without the physician's consent and service, clinics cannot exist. But once a clinic becomes a local resource its existence cannot be ignored.

No one, perhaps not even a physician, who above all is most interested, can know as well as a clinic and hospital superintendent what a tremendous success clinics can be in establishing in the general public an attitude of clinic mindedness which is naturally disasterous to private practice and the individual practitioner.

State Medicine then, we must conclude, has not been fostered in Illinois by the establishment of clinics. In fact, great care has been taken not to do any more than to use clinics previously

established and even now there is a trend toward limiting or defining the type of patient to be sent to established clinics as well as to avoid overcrowding those in use by sending relief clients not already confirmed clinic addicts to the offices of private physicians.

This medical relief effort, after a full year of operation, answers by means of its known accomplishments, completely the following two questions:

"Can the medical profession itself successfully devise and administer a plan, system or method by means of which adequate medical care will be provided for that part of our population which is unable to provide such care for itself? And can this be done without having recourse to the so-called system of 'State Medicine'?"

Because this essayist is personally opposed to State Medicine which regiments the profession into an army of unwilling draftees taking from each his individuality of action, his choice of patient, or his free choice of service, destroying initiative and ambition, he wishes to make it known that these are his own personal views only.

He has no desire to lay the responsibility for them upon any shoulders other than his own. He is personally convinced that to a certain extent the fear by organized medicine of so-called State Medicine is justified. But he has no doubt that the profession can find the way to accomplish all its aims after this experience with medical relief.

Proof of this premise is supplied by the complete success of the present plan of emergency medical relief in Illinois which was devised, and is now operated and administered wholly by organized medicine, through the wisdom and initiative of the Illinois State Medical Society and its appointed representatives, the State Medical Advisory Committee to the Illinois Emergency Relief Commission.

What has the social worker accomplished in connection with the medical plan? However keenly the profession as a whole may feel as we know it does, that the average welfare worker is, to use the crude phraseology of the street, just another acute "pain in the neck," organized medicine in Illinois must admit that there are social workers *and* social workers, just as there are doctors *and* doctors. For it was a social worker with an exceptionally clear conception of social values, Miss Effie E. Doan, director of the social service staff of the Illinois Emergency Relief Commission, who first conceived the idea of this present and now undeniably efficient plan of medical relief and who wisely and diplomatically induced the Illinois State Medical Society to initiate the plan, write the rules and find a way to keep its administration, to all practical purposes, within the body of organized medicine. Here was a social worker who understood medical men and medical aims, principles and ethics; perhaps partly because she herself had mothered and helped educate and seen graduate and go into the practice of medicine her own favorite nephew.

Macon County was the proving ground for a miniature of the medical plan which finally became the adopted method for dispensing medical relief in Illinois. The Macon County Medical Society under the developing impulse of Miss Doan provided the personnel and the initiative to put the experiment into practice.

When the present director of medical relief in Illinois took over the supervision of the project, he quickly realized that not only must the plan be wholly initiated and developed by organized medicine but it must be made practically self-governing. And so it was, and is.

Each County Medical Society named and provided under its jurisdiction a County Medical Advisory Committee to govern the activity within its own community. Miss Doan was clear sighted enough also to see that under each County Medical Advisory Committee there should be a worker of such caliber, understanding and training as to perform harmoniously in complete cooperation with the medical profession.

Obviously, not merely because to many of the profession rightly or wrongly, social workers were anathema when they meddled in medicine, but because this job of carrying out the details in the relief office required a more thorough knowledge of diseases and medical matters than even a so-called "medical social worker" could command, a public health trained nurse was selected in each county, insofar as such could be found locally—to become the liaison officer between the need and the service.

More than a year has elapsed since this medical plan went into effect in Illinois and in that period of time approximately three million dollars of relief money have gone into the coffers of physi-

cians, hospitals, druggists and nurses. By far the largest proportion went into the pockets of physicians. Over three hundred thousand families, 1,200,000 persons, have had the benefit of their ministrations, and morbidity and mortality rates in general in Illinois among the whole population have steadily gone down. Over fifty thousand different persons, men, women and little children, in unemployed families on relief have, during nearly each month of the twelve recently passed, had medical care as the result of this system in Illinois.

And at no time, practically speaking, has it been necessary for the director of the medical plan, the purpose of whose job is merely to represent the interests of the Illinois State Medical Society as well as of the Illinois Emergency Relief Commission and the Federal Emergency Relief Administration, and to interpret the principles and policies of the plan to the County Medical Committees, to tell any physician arbitrarily what to do—nor to attempt to exercise any power except the control of the finances so that the venture would not in any month bankrupt the Commission and would insure that the funds be used to best advantage. He, the director, is merely the servant of the State Medical Advisory Committee and a guide provided by the Commission. He interprets to the nurses in charge of the work in the counties and to the County Medical Advisory Committees, the regulations and policies and principles laid down by organized medicine's own representatives, the State Medical Advisory Committee.

True, he is often asked, especially in counties where either the medical need is greater than the average, or in counties where the plan is faltering because the local Medical Advisory Committee has not had the courage nor the initiative to manage the work properly—"how do you dare to allow a mere nurse to tell a physician, who is infinitely her superior in the knowledge of whether or not a person needs medical aid, that he cannot have a referral to attend a particular patient, or that he must strictly limit his visits?"

The fact is that the plan does not provide that the referral nurse or anyone else should tell any physician anything of the sort and when one occasionally does so it merely means that she is undiplomatic and is choosing her phraseology unwisely.

The nurse is not to say to a physician that he can or cannot do this or that. But the fact is that she must know in advance the cost of the service because the Commission itself must know each month in advance how much money is required for all the counties and once that sum is determined, it cannot permit counties to go into debt or borrow against next month's income—so it provides nominally for each county an amount of money equal to what is now an average of 75 cents per family on relief in that county per month for all forms of medical and dental care. Actually, this sum is considerably over $1.00 per family per month because, in addition to the 75 cents, other money is expended for special medical activities, such as occasional immunization programs, work relief physical examinations, work relief injuries and medical care for transients.

These expenditures bring the medical costs per month to approximately $400,000 on behalf of somewhere around 300,000 to 325,000 families. However, because organized medicine is doing this charitable work at half price the $400,000 buys $800,000 worth of medical service and the 75 cents per family actually equals $1.50.

Knowing that her monthly allowance for medical care is definitely limited and that there is no way of spending money not allocated, a nurse may have to say near the end of the month when the allowance runs low, "Doctor, I cannot give you an authorization for this case because we then would not have sufficient money to pay your bill." Or she may say, "Our funds are so low that the Medical Advisory Committee should strictly guard against recommending operations or hospitalizations or other costly medical procedures, that are not very serious emergencies." It becomes merely a matter of the Advisory Committee itself making such rules and regulations as will prevent frittering away the limited sum of money available, as is sometimes done, upon neurotic or malingering patients or on a host of minor ailments for which a normal employed family would never ordinarily seek a doctor's advice if the fee had to come out of their own pockets. Because when this happens it means that often enough there is not sufficient money remaining in the county allowance to give adequate medical care to some patients whose need is actually far more serious and acute.

Unfortunately, occasionally our nurses run short of diplomatic language and simply say,

"No, I cannot authorize medical care for this patient." We have had physicians ask this department over and over, "What shall I do when your funds run out?" We have had to say in effect, "Let your Hippocrates be your guide," or more likely "What did you do before the Commission supplied the funds; why not endeavor to get the town supervisor or the county to pay your bill and if that fails give your services free." Maybe we should simply say, "Charge it to the patient and collect when he is able to pay." There *are* no other answers.

The Commission's responsibility, it must be clearly understood, can of necessity go only as far as its limited funds reach.

At a recent medical meeting in Danville, where this writer was the guest of his excellent and amiable friend, Dr. Wilkinson, he heard the efficient secretary of your State Society, Dr. Harold Camp, discuss most exhaustively the untoward effects of the Social Health Insurance plan in Germany. He called attention to its many drawbacks among which were a terrific overhead expense culminating in many mammoth administration buildings costing millions of marks.

Consider the overhead expense of the Illinois Medical Relief Plan for a moment; just one director, working under the direction of the State Medical Advisory Committee, a stenographer and one public health referral nurse in each county and in Chicago, one referral person in each district. That is all, except, of course, the accounting service required by State Law, but which was already provided before the medical plan went into operation. Certainly there can be no comparison between the overhead Dr. Camp describes in Germany's social security plan and the plan in force in Illinois.

Of course, this is a temporary plan; here today and gone tomorrow, set up by Illinois physicians to take care of the emergency medical needs of the relief population which today forms about 15 per cent. of the general population in Illinois. It was not intended to be paternalistic and it was not intended nor does it now attempt to simulate nor stimulate State Medicine. To the extent that it should become paternalistic, to the extent that it should usurp the privileges of the family physician, to the extent that it should ever be permitted to force medical care upon all of the population and provide service for all of the minor real or fanced ailments—of all of the population—to that same degree, if it were ever to happen, would this plan become contaminated with State Medicine. But we cannot see any drift in that direction.

The plan is essentially intended to be self-governing. We repeat this. To the extent that local medical advisory committees really and actually function, completely as they should, to that extent it *is* self-governing.

True, it does not function perfectly. Our only criteria of its functioning are the figures which accumulate from the combined reports of all counties using the plan, which are averaged each month to supply a very necessary yardstick or measure of efficiency. What do these averages show?

Statistics seldom reflect the human interest back of the figures so these will be confined to the high lights.

Six counties operated under the medical plan in March, 1934.

Ninety counties operated under the medical plan in March, 1935.

The number of families receiving medical attention in March, 1935, was 309,000, as compared with 315,000 on relief, all but 6,000 being in counties under the medical plan.

The average proportion of these families referred for medical care has varied in recent months from 10 to 12 percent. for down-state counties. The average proportion of Cook County families receiving medical care in three recent months has been 19 to 21 per cent.

The average cost per case per month in down-state counties has been $5.00.

The average cost per case per month in Cook County has been $5.75.

Hospitalization and surgery have averaged one-fourth of the total cost while drug and appliance bills have taken about 6 per cent. Most of the remainder became the earnings of physicians.

During a period of 10 months, from May to February inclusive, over two and one-quarter million dollars has gone for medical care in Illinois. For the full twelve months the amount is over two and one-half millions.

Participating in this income were such proportion of the 7,500 physicians in Illinois as may have registered for medical service. Down state the proportion of physicians registered exceeded 90 per cent. The amount disbursed then per year was equal to about $500 for each physician actively serving.

While all the money doesn't go to the doctors,

the average per doctor per month is $40. In one county, at least, a certain physician was so much in demand that his earnings were $800 a month from the relief service alone. Scores of physicians are receiving $100 or more a month depending upon the number of patients who ask for them and the size of the relief loads in their communities compared with the proportion of doctors in practice there.

Paradoxically the physician whose clientele was among the well-to-do and who, therefore, did not suffer as complete perhaps a loss of income as did his colleague who had always served the poor, received a much smaller proportion of relief medical funds.

To be frank, there is a danger in this situation, not the danger of state medicine, but a danger which might as well be faced openly right here and now. I refer to the temptation which always exists where government money is involved—the temptation to raid the treasury.

While 99 per cent. of the Physicians and druggists registered for this service undoubtedly resist this temptation, alas there is still the 1 per cent. The form this temptation takes is varied. Two or three physicians in one county vie with one another to see which one writes the most prescriptions. Why? Averaging better than four prescriptions per case per call, recently one of them hit the top and wrote nine prescriptions. The patient had to bring a basket to carry the medicine home. Needless to say, the druggists were much pleased as every patient's drug bill per doctor's call, for which the doctor received only $1.00, was from $2 to $7.

In the beginning this department was under the false impression that the druggists were deliberately defrauding the Commission but it was proven to be wholly an idea of a few physicians. One druggist said when orders were withdrawn, "If you take this business away, I'll have to close my doors."

This is really a very short-sighted policy for the physicians involved unless they have an interest in the drug store, because the more money is paid the druggist the less remains to be divided among physicians. All the money assigned to a county for medical care is usually expended; hence, physicians would do well to keep drug as well as hospital bills at a minimum consistent with the patient's welfare. In one county, one out of every eight patients referred for medical care is referred for hospitalization. This is an evil against which only organized medicine can provide protection.

One physician who is also paid as a school doctor collected his pay for examining school children and discovering certain defects sent the children home and, without notifying the parents, asked for referrals to five cases after the relief office had closed, asserting they were emergencies which could not wait until the office opened the next day, much to the surprise of the parents who swore they did not know the children were ill. Those bills were not paid.

By setting up consulting boards and insisting upon approval for each authorization for surgery and hospitalization, as well as demanding a pathological report on every case operated on, several counties reduced the proportion of so-called "emergency" operations 50 per cent. Scores of similar instances of the Medical Advisory Committees providing safeguards against "chiseling" could be cited.

Occasionally, a physician unthinkingly violates the regulation set down by the Illinois State Medical Society that proprietaries be not prescribed. Here is one pathetic if rather glaring example.

A poor client on work relief complained to the Commission Medical service that his daughter, who had spastic paralysis, was refused medicine by our nurse because her case was chronic; hence the family was struggling along on his work relief earnings of $7.50 a week trying to buy out of that meager sum a proprietary phenobarbital derivative costing $5.00 per 100 capsules. The child was in such a nervous state that the drug was required constantly, according to the attending physician. Our pharmacist, hearing of the problem involved, suggested to the physician that phenobarbital at 75 cents per 100 tablets be used in place of the proprietary drug costing $5.00 per 100 capsules. Unthinkingly, the physician had given no heed to the utter impossibility of the family spending $5.00 a week for a drug, the equivalent of which could be purchased for 75 cents.

It is much more pleasing, however, to comment upon the spendid generous whole hearted cooperation given by the 99 per cent. of the medical profession which played fair ball. Thousands of physicians have donated despite the plan, thousands of dollars worth of service for which

they wanted no pay, and ninety medical advisory committees in as many counties have unselfishly directed their energies toward providing a sound control.

Briefly what has the plan done for the physician in Illinois?

1. It has lifted much of his former charitable burden from his shoulders.

2. It has induced the patient to think first of the doctor instead of the drugstore, almost eliminating self-dosing and the purchase of patent medicines of doubtful potency and with shot gun propensities.

3. It has restored the good old art of old-fashioned prescription writing.

4. It has reduced the cost of medical care through the use of U.S.P. and N.F. drug equivalents in place of far more costly proprietaries and specialties.

5. Finally, it has given the physician assurance of regular and certain compensation for the service he renders the indigent unemployed, as well as a voice in the management and control of the system by means of which the service is given.

Summarizing, we find the answer of the profession as to what is State Medicine indicated by Dr. R. K. Packard in a recent issue of the ILLINOIS MEDICAL JOURNAL, in his statement reading:

"Under Health Insurance, under State or Federal control, the free choice of a doctor is denied. Who is to determine who is to take care of your sick ones? Under Health Insurance doctors are overworked, have long hours, and have neither time nor energy left for study or research."

He also mentions the high cost of supervision of state medical care in Germany as does Dr. Camp, stating "the number employed as clerks, investigators, etc., are greater than the number of physicians employed."

Can the Illinois plan of medical care for the indigent be justifiably charged with the possession of any of these defects? If it can, then it *is* "State Medicine." But in the Illinois plan the patient has free choice, committees of physicians guide the nurses' judgment, control is wholly with the profession for indeed the profession made the rules and set the fees. Overhead, as has been shown, is exceedingly low, the physician's time is his own. The only essential difference between the normal relationship of physician and patient and what is set up in the Illinois plan is that Uncle Sam is paying the bill temporarily for those who cannot pay for it themselves.

We must agree then that not only is the Illinois plan not state medicine nor the forerunner of state medicine, but that it really provides an interesting example of how the profession itself can provide medical care for the indigent on a self-governing self-regulated and effective, efficient and humane basis.

Administration Building
Burnham Park.

DISCUSSION

C. E. Wilkinson (Danville): Mr. Roloff has covered the subject so completely there remains very little to be said in relation to state medicine. I think Mr. Roloff, in the position he has held as Director of Medical Service for the Emergency Relief, has done probably as well as any one could have done. In my first talk with Mr. Roloff concerning medical relief, he stated that he was opposed to state medicine and would co-operate with organized medicine in every way possible to prevent its bordering on state medicine. I think he has kept his promise as far as the work downstate is concerned. Of course, he had many difficult problems. He has mentioned the abuse which some of the doctors have made of relief work, also due to the fact that some people on relief have made as much abuse of it as they could, and, naturally, we would expect some criticism from the medical profession. No doubt, part of it was justified due to the program which was set up. They even criticized the State Medical Society for accepting or setting up such a program.

I do not wish to speak particularly in defense of the Council, but rather more in regard to the reaction of the Council as to the Emergency Relief work. A special meeting was called in September, 1933, to consider Rules and Regulations Number 7, as issued by Harry L. Hopkins, Federal Administrator of Emergency Relief for Unemployed. Dr. Packard, Chairman of the Council, in stating the purpose of this meeting, said he thought this was the most important question brought before the Council in a long time.

For the first time, organized medicine was recognized by a ruling from the Federal Government; this set-up ordered the work to be carried on through organized medicine. It also made it definite that medical relief was an essential, along with food, clothing and housing.

One of the first questions considered by the Council was: Would this emergency relief be state medicine? There was much discussion. The Council finally decided, since there was a provision that the patient had the privilege of selecting his own family physician, and that the work was to be under the control of a medical advisory commission, not only representing the state but each county to have a medical advisory commission, that the set-up was not state medicine. After

this discussion, the Council accepted Rules and Regulations Number 7.

The Chairman of the Council appointed a medical advisory commission for the Illinois State Medical Society with Dr. Neal as Chairman, with Doctors Kruescher, Cook, Munson, Phifer, Hess and Camp. I don't think we could have had a more efficient or better commission. They devoted much time to working out a program. Of course, it was necessary to set up a fee and this was discussed very thoroughly before the Council. They had the advantage of comparing programs that were set up by other states. The Council feels that in comparison to the programs, set up by other states, Illinois has the best program.

After the Council had accepted this program, in order to carry it out, it was necessary for each County Society to accept it. Had the counties not accepted the program or made some provision for the medical relief in their county, the Illinois Emergency Relief Commission would have been forced to place physicians in such counties under a salary, and that would have been definitely state medicine.

Mr. Roloff stated in his paper that social workers did not always have the viewpoint of doctors; consequently it is very essential that the medical advisory committee or commission should be informed of any contemplated changes in the medical services. To illustrate this point, I should like to mention a fact that has recently come up in regard to the transient work in Danville, Illinois.

Mr. Daniel Sands, who is Director of Transient Activities of Illinois, was advised to cut expenses because their funds were getting low. It always happens when any expenses are to be cut, the medical services are the first to be reduced. Mr. Sands issued Bulletin Number 32, in which he stated "The medical policy of the Transient Division of the Illinois Emergency Relief Commission will be changed from that of a rotating panel which provides medical care for the men in our shelters to the plan of engaging a staff physician in each bureau who will be appointed at approximately half time, at a salary of $150 a month. This physician will be responsible for all the medical work in the shelters, including medical examinations and such treatment as is needed by the men resident in the shelter. It will be the responsibility of the staff physician to pass upon all referrals for hospitalization, making his recommendations to the Director of the Bureau. No hospitalization should be permitted without the approval of the staff physician."

You can readily see that while he is supposed to be on half time he is on twenty-four call because the transients are coming and going every hour in the twenty-four hours, so that he would be on call night and day. This was to be put into effect May 1, 1935. As Chairman of the Medical Advisory Committee on the Medical Services of the transients in Danville, I was called into conference with the local transient bureau to consider Bulletin Number 32. After much discussion, it was decided best to call a meeting of the physicians giving hourly services at the transient shelter. At this meeting, all the doctors were of the same opinion, that one man would be unable to render the necessary service. We had 700 or 800 men in the shelter and there were frequently seventy-five to 100 coming in each day. The set-up required that these men be examined. It required considerable work and considerable time to do that. For that reason, it was decided this could not be carried on efficiently with one man.

At this meeting, in our final talk with the local bureau and Mr. Sands' representative, a Miss King, we asked her if the State Medical Advisory Commission was aware of such a bulletin. Miss King stated that was her understanding. I wrote Dr. Neal, who immediately replied that he knew nothing of Bulletin Number 32, that he had not heard of any proposed change in the set-up. Later, in a conference with the local transient bureau and Miss King, they asked why I objected to placing a physician on a monthly salary to take charge of the work at the shelter. I told them I didn't think it was fair to the men who had given their time on hourly service to be let out at once; second, that the Vermilion County Medical Society had passed an amendment to the by-laws prohibiting any member from caring for the indigent on a salary or contract; third, for the Illinois Emergency Relief to place a doctor in the shelter on a salary would be purely and simply *state medicine*. I suggested they reduce the medical services to the minimum and operate under the old set-up, calling the doctors in rotation as was necessary.

The work in the shelters, owing to shortage of funds, practically stopped the first of May.

In conclusion, I would like to ask, who wants state medicine? The patients who are served have not asked for it. Labor organizations have made no request for it, and organized medicine is not in favor of state medicine. If the medical profession will stand one hundred per cent. with organized medicine, it is my opinion we shall not have state medicine.

J. S. Templeton (Pinckneyville): As Chairman of the Relief Committee in our county, many phases of this work have come to my attention. Being a practicing physician myself, I have done some of it as well. I would agree with Mr. Roloff this is not necessarily a forerunner of state medicine. I will confess it is somewhat humiliating for the medical profession to take fifty cents on the dollar when all around them everybody else is being paid a dollar for their services, whatever they may be. Yet the medical profession has always been known as charitable and under those conditions we must keep our reputation; this is only a temporary matter.

The medical profession, as a rule, are not satisfied with this work in the state of Illinois, and yet we do it. Just as I was leaving home, one of the prominent physicians in the county said to me, "Won't you do something to change this proposition of fifty cents on the dollar and being out of money three-fourths of the time or quit it altogether?" Having advocated it from the first, I couldn't agree to quitting this work at the present time. Yet I did say I would see what could be done.

I think our committee should be alert to making any change for the betterment of the profession. In

our county, it has been beneficial to a few of our younger men. The charitable work is usually pushed on the younger men. They get something for their services, but I don't find any inclination whatever on the part of these younger men toward state medicine, because they are getting this little fee. Rather they take the opposite attitude and say if this is state medicine they don't want any of it.

After all, gentlemen, there is just one more thing I want to say. The fundamental principle of the physicians in this state today is to avoid sending patients to one physician; in other words, that the family physician tradition may be upheld. I think that is generally carried out quite well in the counties down state. We have had two nurses in our county, both of whom have cooperated in this matter. They have not sent the poor to the physician because it was this or that man but have given them the right of choosing their own physician. For that reason, I feel this is not tending toward state medicine. If there was nothing else, we are keeping away from state medicine in upholding the tradition that every man, no matter how poor, may have a right to choose his own physician.

In my position as advocating it and being located in one of the first counties in the state to adopt it, it has placed me where I had to do some of this work to show the men I would go along with them. I advised the nurse to send to me only those who requested it. That gives me only a small part, of course, but if we can uphold the right of every man and every woman, every family, to choose their family physician, we have done something through this time of depression to uphold the traditions of the medical profession.

Edward H. Ochsner (Chicago): Dr. Wilkinson started his last sentence with the most important little word of the English language. He started it with the word "if." If the medical profession would stand together one hundred per cent. there wouldn't be any difficulty whatever. It is the small per cent. of chiselers in every profession who make the trouble for the remaining members of the profession, and I am sorry to say we have some of those in our own profession.

I remember very well when President McKinley issued his call for volunteers for the Spanish American War, he said that we need not fear any nation; if we need fear anything at all it is trouble in our own ranks, and that is where the trouble is in the medical profession. There are always a few who make trouble. How to cure those of their mental aberrations, I do not know. I shall leave that to the psychologist and the psychiatrist. I am also going to start a sentence with that important word "if." If our experience with our present set-up will teach us a lesson, it won't be time wasted. We are getting just a homeopathic dose of what state medicine is like, and if every member of the medical profession will realize that this is purely a homeopathic dose and that the real state medicine or compulsory health insurance is one hundred times worse, maybe the medical profession will wake up. This is just the prelude unless the medical profession "wakes up" and stops some of the present practices just as soon as the depression is over. If we do not have too much interference in Washington, this depression will be over, and then, if we will stand together and say that we have had enough state medicine, and we don't want any more, the medical profession will be safe. If we don't learn our lesson now, the profession will be sunk as it is in every country in the world where they have state medicine.

The last bulletin of the American Medical Association contains some very important information on the first page. The expense of manipulating state medicine is so tremendous that there is nothing left for the medical profession. When Mr. Roloff says the overhead is small, I would like to know what is big, when it is costing ten million dollars a year of our money. Perhaps his idea of small and big is different from mine, but to me ten million looks like a lot of money.

Charles Herbert Phifer (Chicago): Madam Chairman, Members of the Secretaries Conference: I wish to express my appreciation for the opportunity of hearing Mr. Roloff's paper and the discussion in reference to it. I would like to speak about one phase that Mr. Roloff has raised, namely, "What has the medical profession done to educate the social service worker?"

I personally feel that this should be given considerable thought and that the profession should not pass it by unheeded.

When the Illinois Program for the care of the people on relief was instituted in Cook County, we might say that our Society started from scratch. The Governor's Commission had named the Council of Social Agencies as their advisor on medical care in Cook County, so that any work that we undertook we had to deal direct through this organization. It required considerable time for the Council of Social Agencies to realize that we were sincere in our desire in advising in this undertaking.

The work has required considerable time as our program demands a great deal of executive work. Our committee meets every two weeks. I, personally, as chairman of this committee have spent over twenty-five hours a week in behalf of the problems in connection with the relief situation in Cook County.

The service here differs somewhat from that down state in that it was necessary for us to include chronic care. We started with a payroll of $20,000 a month. This has now increased to around $80,000. Our bills have never failed to be paid, although high payrolls threaten to disrupt the plan.

Dr. Ochsner called your attention a few minutes ago to the danger of the members of the profession defeating their own purpose. We have a few chiselers who are causing a lot of trouble. It has been necessary for us to suspend several for abuse of privileges.

I, personally, believe that if a proper audit was made the work that is carried on down state would show a higher cost of medical care than that which pertains to Cook County. In fact I am informed that if it is properly compared it will show $1.35 down state and $1.08 in Cook County per family.

State medicine is a question which demands a great deal of thought on the part of all of us. It is the responsibility of the medical profession to direct the problems pertaining to medicine.

John R. Neal (Springfield): I had an interesting talk with Mr. Sands and Mr. Roloff ten days ago, in Chicago, after I received the word Dr. Wilkinson brought to your attention. At the time the Illinois Medical Society entered into this tentative agreement with the Emergency Relief that was no such thing mentioned as medical relief for transients. It has been established in one or two cities since that time, also in Chicago. Obviously the number of counties involved in this transient problem are only a few compared with the ninety under the relief plan here in the state. So your advisory committee did not feel it was its duty, in that it had not been so designed on authority by the council, to carry on any type of arrangement with those in charge of the shelters. Mr. Sands, the one who had that directly under his supervision, promulgated these orders, whatever they may have been, about putting on whole or part time physicians in each one of these shelters.

The report of the chairman of the advisory committee for the Illinois Medical Society will recommend to the council at the next meeting that the new advisory committee to be selected by the council be instructed to act in an advisory capacity for the Transient Bureau Service, the same as for the Emergency Relief, and that further the chairman of the County advisory committee in each of the counties where a Transient Bureau is located be invited to act as a subcommittee together with the chairman of the State Advisory Committee to confer on matters relative to the shelters. Mr. Sands assured me, however, less than ten days ago that there will not be a single full or part time physician appointed in these shelters until after the Advisory Committee has an opportunity of going into it further and studying the problem with him. So despite the fact that you hear of some one already appointed or selected, that is not so, because no one has been selected at the present time.

We must carry on in this work until we are quite sure it is not good and then in lieu thereof offer a better plan for the commission which is spending the money. The Advisory Committee will undoubtedly see the wisdom, after this meeting, of directing a questionnaire to each advisory committee in each county of the state, including the county officers and you as secretaries. From that questionnaire and from your concrete and definite recommendations, certainly we can evolve a right way to attack this problem. As you get these questionnaires it won't be satisfactory merely to condemn the things that have gone on in your county which you don't like. Certainly we want to evolve from that, your recommendations as to how you believe it could be bettered, but, speaking as an individual, I don't believe the Medical Society would be wise at the present time in losing contact with the hook-up we now have. Let us refine it and correct it, let us condemn the portion that is not good, but certainly we are not in position at the present moment to deny it can be worked out.

The Advisory Committee is making a report which you will receive together with the other printed reports distributed in the House of Delegates. If you are interested, you may review the report which was edited by Dr. Phifer, in charge of Cook County, together with myself as chairman of the Advisory Committee. I want to apologize for the fact that the report was written so late we merely had time to attach your names to it. If there is anything in the report with which you take issue the blame is to be attached to us as individuals. If there are parts of the report which you feel are not an expression of the Medical Society, just attribute it to the two who are chairmen of the committee and not to the other six members who have not had the opportunity of formulating this report.

DIET IN DISEASES OF THE SKIN

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Although Hippocrates was a staunch supporter of dietetics and developed the dietotherapy of wounds, we do not know of any data pertaining to the nutritional treatment of skin diseases in ancient or medieval times. There is not a single reference to this subject in any history of medicine or in pertinent dermatologic writings. Let us examine this problem in the light of modern experimental and clinical medicine in order to assign a proper place to dietotherapy in diseases of the skin.

The condition precedent of any real progress on the clinical side is an exhaustive study of the experimental side, but this was impeded for many years by the lack of precise microchemical methods of tissue examination.

The investigations of Urbach[1], Mayer and Sulzberger[2] have demonstrated that acid and alkaline nourishment changes the reactivity of the skin. This is not the same as saying that the hydrogen ion concentration and the calcium content of the skin are altered by food. The skin merely becomes more or less predisposed to irritation by external stimuli, for Edel[3], Levin and Silvers[4] showed that acid or alkaline food does not permanently alter the hydrogen ion concentration of the blood and skin, which is not a constant factor for all people. Even in the same individual the skin varies considerably from its normal state of acidity under the influence of environmental factors, especially the weather[5].

When animals are fed on oats the skin soon grows hypersensitive to stimuli and this altered inflammatory response is correctly attributed to

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a change in the chemical structure of the skin, for marked ionic displacements are effected by such a diet. A base-forming dietary, on the other hand, renders the skin less sensitive to irritation. Also, we have recently learned that the skin is a great storehouse for sugar, for when animals are given large quantities of it the blood sugar soon returns to normal levels but the cutaneous sugar is increased for a long time.

It is a long road, however, from these animal experiments to cutaneous therapeutics. After all, a certain author notwithstanding, we are not guinea-pigs, and our constitution and environment are infinitely more complex and variable than those of an animal. Diet is only one of a number of environmental factors capable of influencing the skin, as Petersen[6] has demonstrated. I have long felt that certain skin diseases are the result of an interplay between the individual's constitution and his environment, an idea recently expressed by Darier[7]. A child may be vegetatively stigmatized at birth and such an organism with a heritage of hay-fever, asthma and vasomotor rhinitis is almost certain to fall prey to any one of several environmental factors. These factors are trauma, bacteria, foods, allergens, emotional shock, endocrine and gastrointestinal disturbances, cold, proteins, histamine and the weather, of which diet apparently plays a lesser rôle in the pathogenesis of the dermatoses. Stokes[8] has recently demonstrated that the psychic factor is of major importance in urticaria.

I repeat, we are not the same as laboratory animals and therefore we encounter numerous failures in applying the results of animal experimentation to human beings.

In the following discussion of diseases of the skin definitely benefited by diet, you will be shocked by the paucity of good results obtained by dietotherapy. Under the stimulating influence of one of the pioneer workers in this field, I have labored assiduously to treat dermatoses with diet, but I regret to say that cures have been few and far between.

Considered from *a practical standpoint,* the importance of nutritional allergy in cutaneous diseases is small. Just the other day the head of one of our largest dermatologic clinics told me that at last he had seen a patient with urticaria who was definitely sensitized to strawberries. He said that this was one of the few cases in which a food allergen had been definitely proved.

Eczema.—Great hope was entertained for the relief of eczema by diet. In the case of adult eczema these hopes have been rudely shattered and as for childhood eczema, the paucity of proved favorable reports is discouraging to say the least. For a case to be proved due to a certain food it is not sufficient to witness a cessation of the eczema when the suspected food is withdrawn from the diet. It is necessary to obtain a positive transfer of the sensitization to a normal individual by the method of Prausnitz and Kuestner. How many times has the allergist reported that the scratch tests showed positive reactions for egg white, milk or wheat in a refractory case of yours? I cannot emphasize this point too strongly, for my experience has been that scratch tests are of little or no value in detecting food allergy in skin diseases. The intracutaneous injection or inoculation in a scarification of a suspected food is no test of this substance being responsible for an eczema when ingested. Proof of egg and milk being such frequent causes of childhood eczema as is generally supposed, has not been definitely made.

In fact, in the dispensary of the Grant Hospital of Chicago, it has been our custom for years to feed eggs to infants with eczema who display a positive reaction to egg white with the scratch test. As stated above, we have discarded the scratch test as valueless because most of these infants display a positive reaction to egg white, regardless of the condition of their skin. It is our experience that these children do as well with this diet as when eggs are prohibited. The sensitization to egg is merely an indication of an allergic skin. The hypersensitivity to egg and the eczema are separate manifestations of a congenital idiosyncrasy and the egg white is not the cause of eczema. Proof of this assertion lies in the fact that neither the feeding nor the elimination of eggs seems to influence the course of the eczema. Burchard's[9] experience in Wuerzburg coincides with ours.

In a very limited number of cases it is possible to incriminate a food. But can we desensitize the patient to the specific allergen? Again, disappointment awaits us. The opinions of authorities at a recent round table discussion were almost unanimous in denying the possibility of desensitization. It has been proved that a spe-

cific antigen-antibody reaction exists in less than five per cent. of cases of eczema. Desensitization from a strictly immunologic standpoint is probably impossible. Conceding that it were possible, what physician will assume the responsibility and danger of intradermal desensitization in an ambulatory patient, which after all is the method offering the best chance of success?

When the history of hypersensitivity points definitely to a certain food the treatment of choice is to avoid that food in all forms. It is not uncommon for a patient to develop urticaria or eczema on eating tomatoes and if avoidance of tomatoes is carried out for a year or two the patient may acquire a slight or considerable degree of tolerance for them. There is a good chance that the patient will be able to eat cooked tomatoes, but he will probably never be able to eat raw tomatoes.

If a food is suspected of causing a dermatosis a good method of detecting the allergen is Rowe's[10] elimination diets. Rowe has systematized these dietaries so that it is relatively simple to run through the foods included in the average menu within three or four weeks.

Rowe has arranged four diets and each one of these is continued for seven to ten days, beginning with a diet consisting solely of milk. If the symptoms subside with this diet, each of the other dietaries is gone through until one is found that does not elicit symptoms. Every four or five days a new food is then added, at the very last wheat and eggs.

The disadvantage of such elimination diets is the matter of time, for it sometimes requires many weeks to detect the harmful food or foods.

Urbach devised a method of discovering the nutritive allergen in a much shorter period of time. Experiments showed that giving a small quantity of the peptone or food to which a patient is sensitized 45 minutes before he eats a dish of that food results in neutralization of the food's harmful action. Utilizing this fact he has prepared a number of peptones and the patient is instructed to eat only food for which there is a specific peptone, making up his diet to suit himself in all other respects. A specific peptone should be taken three-quarters of an hour before a protein foodstuff is eaten. As soon as the symptoms subside the patient continues with his diet as before, but omits a different specific peptone every day. Should itching and urticaria recur for example after eating white bread without first taking a tablet of wheat peptone, the nutritive allergen is most probably wheat.

In generalized, exudative cases of eczema it is advisable to give the patient solely milk for three days along with sufficient phenobarbital to relieve the itching. Such patients will experience great relief both from the itching and from the discomfort of applying topical medications by remaining in a tub bath for prolonged periods of time.

In infantile eczema a change to some other form of milk is made. Individualization of cases is essential and the physician should have no difficulty in prescribing any one of the numerous gruels, milks and vegetable soups. Overfed infants with cradle-cap and milk-crust should be restricted as to intake, especially water and salt. Undernourished children with a dry type of eczema do best on a high caloric diet. Older children with neurodermatitis are best treated with plenty of food, rest, quieting tub baths and above all, avoidance of disturbing habits of late hours and nervous excitement. Becker has recently made use of functional tests to demonstrate that patients with neurodermatitis are particularly unstable, nervous individuals.

Acne.—The fact that so many foods have been incriminated as causing acne speaks strongly for the innocuousness of all. Rich foods such as chocolate, cocoa and cheese usually aggravate acne. The reason for this lies in the fact that at an age when acne occurs there is a great demand for nourishment by the growing tissues of the body and the oil glands are as yet in a very unstable period of adjustment, so that an excess of food easily upsets the sebaceous mechanism. The iodine present in table salt and the potassium bromide used as a modifier in bread baking are exceptions to the above statement. There is not an iota of scientific evidence that there is any disturbance of carbohydrate metabolism in acne. It is my opinion that the ill effects of a relatively high intake of sweets and starches may be due in some instances to an idiosyncrasy in reaction towards certain specific items in the diet, but in the large majority of cases the ill effects are due rather to the increased quantity of food.

In addition to excluding cheese, chocolate, cocoa and nuts from the diet, patients should not eat much bacon, ham, sausage, goose and

fried foods in general. The value of excluding sodium chloride, as was recently recommended by Lerner[11] remains to be proved.

Psoriasis.—Most of us have at some time or other advised a protein-free diet in cases of psoriasis, but have many satisfactory results been obtained? My faith in dietotherapy for this disease was rudely shattered by my first patient. Fresh from the inexperience of medical school I made a great show of telling the patient not to eat meat and his skin trouble would quickly clear up. He answered by saying that he was a vegetarian and had never eaten meat in all his life. The latest dietetic treatment for this disease is the fat-free diet devised by Gruetz[12], who believes that psoriasis is due to a disturbance of lipoid metabolism. Our experience with this dietary is limited and it is difficult to keep ambulatory patients on such a fare. In the final analysis, however, improvement in these cases is most probably due to the loss of weight brought about by such a restricted dietary.

Rosacea.—This distressing condition is not curable by diet. Associated with a red nose, rosacea is probably due to paralysis of the vasoconstrictor apparatus controlling the capillaries and venules of the skin, possibly resulting from a focus of infection. In many of these cases I have found a marked degree of gastric hypoacidity. It is probable that hypochlorhydria and dilatation of the vessels of the skin are coordinate manifestations of a general muscular hypotonia. Such patients do well when hydrotherapy, massage and limited dietary restrictions are instituted. Very hot foods and drinks, spices and alcohol should be prohibited.

Tuberculosis.—This disease offers an encouraging field for dietotherapy, but there is one serious drawback to its use in practice. Patients with lupus vulgaris do remarkably well on a salt-free, high-fat and vitamin dietary, but it is next to impossible to carry out such a strict diet in the average home. Institutional treatment is essential.

General.—Except in acute cases with obvious etiology and in rare instances of sensitivity to a specific allergen, such as the one of strawberry sensitization cited above, dietotherapy has been more or less of a failure in urticaria. It is very difficult to track down the etiologic factor in most cases of chronic urticaria.

In generalized furunculosis, mycosis, pyodermia and pruritus an antidiabetic diet and insulin are often of great benefit. Specific diabetic dermatoses, such as gangrene and necrobiosis lipoidica, are helped a great deal by diet.

The restriction of tea and coffee in patients suffering from pruritus ani is advisable. Certain types of scleroderma are benefited by pancreas, given orally and subcutaneously.

Lesions on the lips, cheeks and tongue may indeed be a chronic herpes or oral manifestations of a gastrointestinal allergy, but in my experience it is difficult to help the patient by carrying out a time-consuming elimination diet. In such a case of herpes it is infinitely better to perform an inoculation into the skin with fluid from the patient's own blisters[13]. When the vaccination "takes," immunity apparently lasts for years.

Yellow discoloration of the skin is caused occasionally by eating large amounts of vegetables, especially carrots, spinach and lettuce, which are rich in carotin and xanthophyl. Butter and egg yolk are also lipochromatic foodstuffs.

There are some cases of inflammation of the skin caused by eating foods containing photodynamic substances. Buckwheat is one of these substances. Certain individuals will develop an eruption if they go out into the sun after eating some buckwheat. A condition known as Rhiel's melanosis was common among civilians in wartime Vienna, the cause being a bread containing a photodynamic material.

I am reserving, as a place of honor, this last paragraph for the deficiency diseases, such as pellagra and scurvy. The brilliant effects of diet in these conditions are too well known to require comment at this point. But I would like to call attention to a few cutaneous abnormalities which are apparently caused by a deficient amount, rather than by a lack of vitamins. These conditions of hypovitaminosis are exhibited as a dry, scaling skin along with follicular papules, teeth and nail changes. The future will undoubtedly reveal many more of these border line manifestations of vitamin deficiency.

Conclusions.—I have made an attempt to obtain a clear idea of the value of diet in diseases of the skin. A few pertinent experimental data are presented and when these facts, discovered for the most part in experiments on animals, are applied to the treatment of human beings,

we are astonished at the results. I do not want to be understood as denying the effect of diet in various dermatoses, but certainly a sharper line should be drawn between what is proved and what is not proved. The picture of medicine dealt with by the laboratory worker is that which is deployed before his senses at a given moment and it is one of the tacit, but none the less firm presuppositions of research that experiments are the same for every individual and for all times. This is certainly not true in the case of dietotherapy in cutaneous disorders. I have tried to show that eczema and urticaria may be caused by a certain food in one season, whereas when that food is given in another season under different conditions of climate or nervous tension, no skin disease occurs. The constellation of environmental factors may completely alter the reaction of the skin to foods. The results of animal experimentation cannot be transferred unreservedly to human beings.

What is called the art of medicine has as its basis an indescribable sensitive faculty of perceiving the individual as a whole. The physician should consider not only each of the environmental factors comprising the totality of etiology and treatment, but even more, the relative importance of these factors to each other. Considered in this light, I cannot assign an important position to dietotherapy in the pathogenesis of diseases of the skin.

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13. Schmidt, F. R.: Herpes Vaccination, Arch. Dermat. & Syph., 32: 1, 1935.

DISCUSSION

Dr. Arthur W. Stillians, Chicago: The dermatologist must agree with Dr. Schmidt in his somewhat discouraging outlook on the effect of diet. My experience with psoriasis has been a similar one. The low fat diet I tried recently with an effort to furnish calories in the diet sufficient to keep up the weight of the patient, and I think that should be done in all except overweight patients. The diet seems to me a dangerous one if the patient is allowed to continue without supervision. I have not had any startling results, I must confess.

The Gerson low sodium chloride, high vitamin diet I think is of some value, even in ambulatory patients, if the wife or cook is of superior intelligence.

Acne I know is made worse by diet. I go out to the Municipal Tuberculosis Sanitarium in Chicago and every time I go I see dozens of cases of acne and seborrheic dermatitis that have occurred since the patient entered the hospital. The fattening diet they have out there makes these conditions common. Whether there is any one factor in the diet that has an effect I do not know. I have not been able to get any evidence in favor of this theory. The trouble is that we need a lot more experimental work. Calcium in the blood has been worked on a great deal without much benefit. The study of calcium and sugar in the skin may be of more help to us.

I agree with Dr. Schmidt in his demand for more scientific work, for better proof of the effect of poor diet before we can expect much in the way of therapy.

THE GERMAN MEDICAL REPORT OF THE WORLD WAR

The official German sanitary report of the World War, 1914-1918, as prepared by the Heeres-Sanitäts-Inspektion des Reichswehrministeriums, has begun to be published. Volume III, which has just appeared, gives a survey of the number of persons killed, wounded and the victims of disease among the participants in the war. The number of medically treated wounds and illnesses amounts to more than 27,000,000. The details of the survey are based on the utilization of the huge mass of statistics contained in the official lists of the dead, and in the medical reports of the troops and the hospitals of the army in the field and the army of occupation. From September, 1918, on, however, the reports are incomplete because of the revolutionary disturbances.

The total number of war participants in the army (exclusive of the marine and the protective forces in the colonies), up to the end of July, 1918, was 13,100,000, or, if the 1900 levy, which had been called to the colors, is included, 13,300,000. During the four years of the war the average number of effectives in the army in the field and in the army of occupation was 6,372,000. Up to Dec. 31, 1933, (that is, including delayed reports), the total number of persons killed in action and dying from all causes is placed at 2,036,897. Of this number, 1,900,876 were killed or died during the war or during the border struggles in the east, 34,836 in the navy, and 1,185 in the colonies. In addition, 100,000 were reported missing, being presumably dead. The loss of human life is increased, in one sense, by the resulting diminution of births, which for the

present territory of the reich is placed at 3,000,000, and at 3,500,000 for the prewar territory.

The number of persons totally blind as the result of war injuries was 2,734. The army in the field had 4,814,557 wounded men during the four years of the war.

GLANDULAR PHYSIOLOGY AND THERAPY: THE PHYSIOLOGY OF ESTROGENIC PRINCIPLES

Edgar Allen, New Haven, Conn. (*Journal A. M. A.*, April 27, 1935), stresses the following points in the physiology of estrogenic substances. First, as a major objective, the fundamental endocrine mechanism of the estrous and menstrual cycles has been demonstrated. Active hormones have been isolated and their relation to one another partially worked out. Second, incidental to the first point, the reaction of the rodent's vagina has provided a practicable test for the biologic standardization of therapeutic products, and these have now replaced the inert gland extracts previously in wide clinical use. Third, the extension of the test to carcinogenic substances and to other substances of similar chemical structure from a wide range of sources is extremely important. In description of some of the carcinogenic and estrogenic substances, the time interval required may be considerably greater than that required for the growth phase of the estrous reaction to theelin. The reasons for variations in the time of reaction are not clear. It is not yet known whether some of the related substances included under the term "estrogenic" will produce more than the vaginal growth reaction. Few of them have been tested as to value in replacing other phenomena of estrus or menstrual phenomena in primates.

This mother's fine frankness about her mistake shows quite clearly the terrible cost of what seemed like a simple way to save expense.

If her son had been immunized against diphtheria when he was still a baby, in all probability he would never have had diphtheria.* If she had summoned the doctor at the first sign of illness, diphtheria antitoxin would in all likelihood have prevented a serious sickness.

Treatment by home methods is seldom wise—seldom economical in the end. Only through a long course of study and through experience has your doctor learned how to diagnose and treat disease—so how, can you or any of us, expect our amateur observation to take the place of his scientific knowledge gained in classroom, laboratory, hospital and daily practice?

When illness comes, time is precious. See your doctor—the one man who really knows what to do—and see him at once.

*Children who were not immunized in infancy should surely be immunized before they start going to school. Consult your family physician.

BACK TO NORMAL

Nurse—"I think he's regaining consciousness, doctor; he tried to blow the foam off his medicine."

MacPHERSON TO MacTAVISH

One Scotsman complained that he had a ringing in his head.

"Do you ken the cause of that?" asked his worthy crony. "It's because it's empty."

"And have ye never a ringing in your head?"

"No, never."

"It's because it's crackit."

A SAFE BET

Mrs. Brookline: "I understand the Eskimos are very keeen domino players, and sometimes bet heavily, even putting up their wives and losing them."

Mr. Brookline: "Well, I'll bet there are a lot of good losers among the Eskimos."

ON HIS SNEEZE

St. Peter—"How did you get up here?"
Latest Arrival—"Flu."

Flock of professors are experimenting with monkeys, trying to give them an education. It ought to be easy to get them to go through the higher branches. —*Jacksonville (Fla.) Times-Union.*

"A vegetarian diet is best for those who would be beautiful," we read. Well, it does not seem to have done much for the elephant.—*Punch (London.)*

"Here the Martin Johnsons are coming back again, and I haven't a new thing to wear."

Society Proceedings

BUREAU COUNTY

Bureau County Medical Society will hold its first fall meeting at the Perry Memorial Hospital, Princeton, October 1, according to announcements sent out by Dr. C. R. Bates of DePue, Secretary.

A dinner will be held at the Perry Memorial Hospital at 6:15 o'clock and this will be followed by the scientific program to be presented by two Chicago physicians. Dr. W. A. Newman Dorland, author of the *Medical Dictionary* and a Diplomate of the American Board of Obstetricians and Gynecologists, will speak on "The Origin of Ovarian Tumors." Dr. Frederick R. Schmidt will give an illustrated lecture on "Nutrition and Skin Diseases."

Physicians of this section of Illinois are cordially invited to attend this important meeting and take part in the discussion of the two papers.

Marriages

WALTER PRUSAIT, Chicago, to Miss Leona Schupmann of St. Louis, July 25.

CARLO S. SCUDERI to Miss Alice Kathryn Regan, both of Chicago, July 31.

ADOLPH ALLAN SMOLEN to Miss Mildred Gerber, both of Chicago, July 7.

Personals

Dr. Sarah A. Pearl will present a paper before the Chicago Council of Medical Women, October 4, entitled "A New Active Principle of Ergot and Its Clinical Significance.

Dr. Frank H. Lahey, Boston, will address the North Side Branch of the Chicago Medical Society, October 3, on "Newer Aspects of Hyperthyroidism and Hyperparathyroidism, Together with a Consideration of Total Ablation of the Thyroid."

Dr. Leon Unger, Chicago, discussed hay fever before the Kiwanis Club of Harvey, July 23.

Dr. Joseph L. Bryan, Xenia, has been appointed health officer of the district including Clay, Effingham, Jasper and Crawford counties.

The Henry County Medical Society was addressed by Drs. Samuel M. Feinberg and Géza De Takáts, Chicago, at Geneseo, July 31, on allergy and treatment of varicose veins, respectively.

Dr. Max S. Wien, Chicago, addressed the Stephenson County Medical Society at Freeport, August 28, on "Relation of Dermatology to General Medicine."

Dr. Hugh A. Beam, Moline, has been appointed medical director of the Rock Island County Tuberculosis Sanatorium, succeeding the late Dr. Arthur T. Leipold, effective August 1.

Dr. Olin T. West was the guest speaker at the September 23 meeting of DeWitt County Medical Society.

Dr. Robert S. Berghoff addressed the Elmhurst Hospital Staff on "More Common Forms of Heart Disease," September 24.

Dr. Abraham Levinson was invited to give a paper on "Poliomyelitis" before the Will-Grundy County Medical Society at Joliet, September 25.

Dr. Cleveland J. White addressed the staff of Westlake Hospital at Melrose Park, September 25.

Drs. Edward L. Cornell, Charles E. Galloway and Irving F. Stein presented a program on obstetrics before the LaSalle County Medical Society at Ottawa, September 26.

Dr. Bernard Kleinman addressed the Community Welfare Club on West North Avenue, September 16, on "Heart Disease."

Dr. Channing W. Barrett announced the removal of his office from the Marshall Field Annex Building to the Henrotin Hospital, 115 West Oak Street.

Dr. Max Thorek addressed the American Congress of Physical Therapy in Kansas City, Mo., September 11 on "Electrosurgical Obliteration of the Gall Bladder."

The Chicago Society of X-Ray Technicians will hold their monthly meeting on October 3 at the North Side Y. W. C. A., 1000 North Dearborn Street.

Dr. Erwin P. Zeisler read a paper on "The Treatment of Acne Vulgaris," at the American Congress of Physicial Therapy, Kansas City, September 11.

Dr. Frederick B. Balmer addressed the Fort Wayne Medical Society, September 17, on "Essentials Every Physician Should Know."

Drs. Wm. R. Cubbins, George H. Gardner, Wm. H. Holmes and John A. Wolfer presented the program at the Annual Meeting of the Utah State Medical Association at Logan, Utah, September 5, 6 and 7.

They also presented the program at the Annual Meeting of the Idaho State Medical Society, September 9, 10, 11, 12 and 13.

Dr. Max S. Wien addressed the Stephenson County Medical Society at Freeport, Illinois, August 28, 1935. His subject was "The Relation of Dermatology to General Medicine."

The first meeting of the Cook County Physicians Association was held September 22, at Provident Hospital. "Collapse Therapy" was discussed by Drs. Payne and Dawson, and Reports made of the National Medical Association held in New Orleans.

Dr. Max Thorek will be guest speaker of the Pennsylvania State Medical Society on October 2 at Harrisburg, Pa. His address will be on "Rationale of Electrosurgical Obliteration of the Gallbladder (an Experimental and Clinical Study of 144 cases)."

News Notes

—Officers of the Chicago Urological Society elected at the recent annual meeting are Drs. Benjamin E. Fillis, president; William J. Baker, vice president, and Colquitt Otis Ritch, secretary.

—A symposium on the present concept of focal infection was presented before the Chicago

Dental Society at a meeting, September 17; speakers were Dr. William P. Murphy, Boston, Boyd S. Gardner, D. D. S., Rochester, Minn., and Dr. Lloyd L. Arnold, who presented the views of the internist, dentist and bacteriologist, respectively.

—Tests on 3,837 persons at the recent state fair in Springfield showed conclusively that the mental processes of nearly half of them are so slow that it is not safe for them to drive automobiles at high speed. The tests were conducted by the state health department as features of the exhibit on health and safety, to determine the skill of automobile drivers. One-third of the persons tested required five-eighths second to apply the brakes on an automobile after a visual signal was given, while one in each ten tested required at least three-fourths second. The health department points out that, since at 60 miles an hour a car travels 88 feet per second, the importance of delayed mental response to an emergency situation is apparent. It further points out that motor accidents are now the cause of 2,500 deaths and more than 70,000 painful injuries annually in Illinois.

—At a meeting of the Jefferson-Hamilton County Medical Society, Mount Vernon, a symposium on obstetrics was presented by Drs. Thomas B. Williamson, Harry G. Thompson, William G. Parker, all of Mount Vernon; Frank B. Hiller, Pinckneyville, and John Beverly Moore, Benton.

—At a meeting of the Peoria City Medical Society, September 3, speakers included Drs. William A. Malcolm on endometriosis; Hugh E. Cooper, backache; Walter H. Baer, early symptoms and treatment of dementia paralytica, and John M. McCuskey, common skin diseases. Dr. Nelson M. Percy, Chicago, addressed the society, September 17, on "Surgery of the Superior Hypogastric Plexus of the Sympathetic Nervous System."

—Dr. Henri Coutard, chief of the department of roentgen therapy of cancer, Curie Institute, University of Paris, will deliver the twelfth Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago, October 1, at the Chicago Woman's Club. The subject of his illustrated lecture will be "The Conception of Periodicity as a Possible Directing Factor in the Roentgen Therapy of Cancer." The meeting will be a joint session with the Chicago Laryngological and Otological Society.

—The illegal practice of shipping mad dog heads to state diagnostic laboratories in Springfield has grown to such proportions that Dr. Frank Jirka, state health officer, has appealed to the postoffice department in Washington for assistance in discouraging the use of the postal service for this purpose. It was pointed out that it is illegal, hazardous and nearly always worthless to ship dogs' heads by mail to the laboratories for examination for rabies; furthermore, since the heads are not in sealed metal containers, they expose postal employees to infection; not being packed in ice they decompose en route, making it difficult if not impossible for laboratory technicians to determine whether or not the dog was rabid. To date this year 559 heads have been examined, the largest number in several years, while about 1,435 persons have received antirabic treatment.

—AN OPENING FOR A PHYSICIAN: In a Wisconsin town, population 10,000 has a splendid financial opportunity for a capable, well trained internest. Catholic or Luthern preferred. E. B., care ILLINOIS MEDICAL JOURNAL.

—The September session of the Madison County Medical Society was held at the Alton State Hospital. Dr. A. A. Low, Chicago, Assistant Director of the Psychiatric Institute and Assistant to the State Alienist, was the guest speaker. He conducted a clinic illustrative of border-line neuro-pathology.

—Dr. D. D. Monroe, Secretary of the Madison County Medical Society, has opened an office in Alton.

—Mrs. Emily H. Cole, Springfield, is Executive Secretary of the Madison County Anti-Tuberculosis Association during the 1935 seal sale campaign.

—The Alton Medical Society was entertained at its regular September meeting by Dr. and Mrs. E. R. Quinn, East Alton. The guest speaker was Dr. J. Edgar Stewart, St. Louis. Subject intra-capsular fractures of the hip joint.

—The following officers were elected at annual meeting of the Chicago Society of Internal Medicine: president, Robert W. Keeton; vice-president, Sidney Strauss; secretary-treasurer, Clarence F. G. Brown.

Deaths

EMIL FREDERICK BAUR, Chicago; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; aged 67; died, August 25, in the Presbyterian Hospital of infarction of the lungs.

AUSTIN L. CLEVELAND, Dallas City, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; aged 63; died, August 1, in Rockford, of pyemia.

GEORGE W. CRUM, Arenzville, Ill.; St. Louis Medical College, 1874; aged 86; died, August 7, of coronary thrombosis.

HENRY THOMSON CUMMINGS, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; a Fellow, A. M. A.; on the staff of the Jackson Park Hospital; aged 54; was found dead, July 30, of chronic myocarditis.

JAMES CORNELIUS GILL, Chicago; Rush Medical College, Chicago, 1890; professor of clinical neurology at his alma mater; member of the Central Neuropsychiatric Association; on the staffs of the Presbyterian Hospital, Cook County Psychopathic Hospital and the Illinois Masonic Hospital; aged 69; died, July 1, in the Washington Boulevard Hospital of uremia.

LOUIS ADOLPH GRIMME, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1891; a Fellow, A. M. A.; aged 70; died, July 21, of myocarditis and coronary sclerosis.

JOHN BRIGGS HAGEY, De Kalb, Ill.; University of Louisville (Ky.) Medical Department, 1902; member of the Illinois State Medical Society; past president and secretary of the DeKalb County Medical Society; city health officer; aged 65; died, July 29, of cerebral hemorrhage.

JOHN W. HERMETET, Macomb, Ill.; Chicago Homeopathic Medical College, 1896; a Fellow, A. M. A.; formerly secretary of McDonough County Medical Society; medical director of the Marietta Phelps Hospital; aged 63, died, August 4, in the Memorial Hospital, Buffalo, of pneumonia.

EDWARD BEACH LOOMIS, Oak Park, Ill.; University of Vermont College of Medicine, Burlington, 1870; aged 87; died, July 28, of coronary thrombosis and arteriosclerosis.

EDWARD MCLOUGHLIN, Chicago; Rush Medical College, Chicago, 1890; aged 83; died, July 1, in the Evangelical Hospital, of carcinoma of the intestine.

GORDON BERGE MCNICOL, Dixon, Ill.; Northwestern University Medical School, Chicago, 1935; aged 26; died, June 26, in the Cleveland (Ohio) City Hospital, of subacute bacterial endocarditis.

DALLAS TEXAS ODELL, Christopher, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1901; aged 55; died, July 30.

JAMES HENRY OUGHTON, Dwight, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; a Fellow, A. M. A.; aged 53; was shot and killed by bandits, August 1.

JOSEPH W. PROPECK, Oak Park, Ill.; American Medical College, St. Louis, 1882; aged 76; died, July 15, of chronic myocarditis and nephritis.

LOYAL DEXTER ROGERS, Chicago; Hahnemann Medical College and Hospital, Chicago, 1884; Rush Medical College, Chicago, 1896; aged 78; died, July 25, in St. Luke's Hospital, of prostatitis, pyelonephritis, chronic myocarditis and hypertension.

BENEDICT F. SHANAHAN, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; a Fellow, A. M. A.; on the staff of the University Hospital; aged 63; died, August 2, in St. Luke's Hospital, of uremia.

FRANK JAMES SHOOK, Warren, Ill.; Rush Medical College, Chicago, 1900; aged 68; died, August 2, in St. Francis Hospital, Freeport, of cerebral hemorrhage and arteriosclerosis.

EDWIN P. SLOAN, since 1932 a member of the Judicial Council of the American Medical Association and from 1924 to 1932 a member of the House of Delegates, died, September 13, at his home in Bloomington, Ill., of myocarditis. Dr. Sloan was born in Neosho, Mo., Feb. 13, 1878. He received his medical degree from the University Medical College of Kansas City (Mo.) in 1898 and later studied in Berne, Switzerland, and took graduate work at the University of Berlin, Chicago Polyclinic and the New York Post-Graduate Medical School. From 1898 to 1903 he practiced in Danvers, Ill. In 1905 he settled in Bloomington, where he specialized in the surgical treatment of goiter and diseases of the stomach. He was a founder of the American Association for the Study of Goiter and a former president of that organization. He was a founder also of the International Conference on Goiter in Berne, Switzerland, and several times served as a delegate. He was a member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; past president of the Illinois State Medical Society, 1922-1923, and past chairman of the advisory board of the Illinois Department of Public Health. Dr. Sloan was surgeon-in chief of the Sloan Clinic and on the staffs of the Mennonite Hospital and St. Joseph's Hospital. He had written many articles on goiter, abdominal surgery and gynecology and had practically completed the writing of a text-book at the time of his death.

JOHN GEORGE TAPPER, Elgin, Ill.; Rush Medical College, Chicago, 1882; aged 82; died, September 10, of chronic myocarditis.

WILLIAM HENRY TAYLOR, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1904; served during the World War; aged 56; died, June 18, of heart disease and chronic nephritis.

ROY MCMILLAN WHEELER, Sycamore, Ill.; Northwestern University Medical School, Chicago, 1900; member of the Illinois State Medical Society; aged 64; died, May 19, of carbon monoxide poisoning.

EUGENE YETMAN YOUNG, Champaign, Ill.; Rush Medical College, Chicago, 1903; member of the Illinois State Medical Society; on the staff of the Burnham City Hospital; aged 55; died, July 22, in the Mercy Hospital, of bilateral tuberculosis of the kidneys.

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